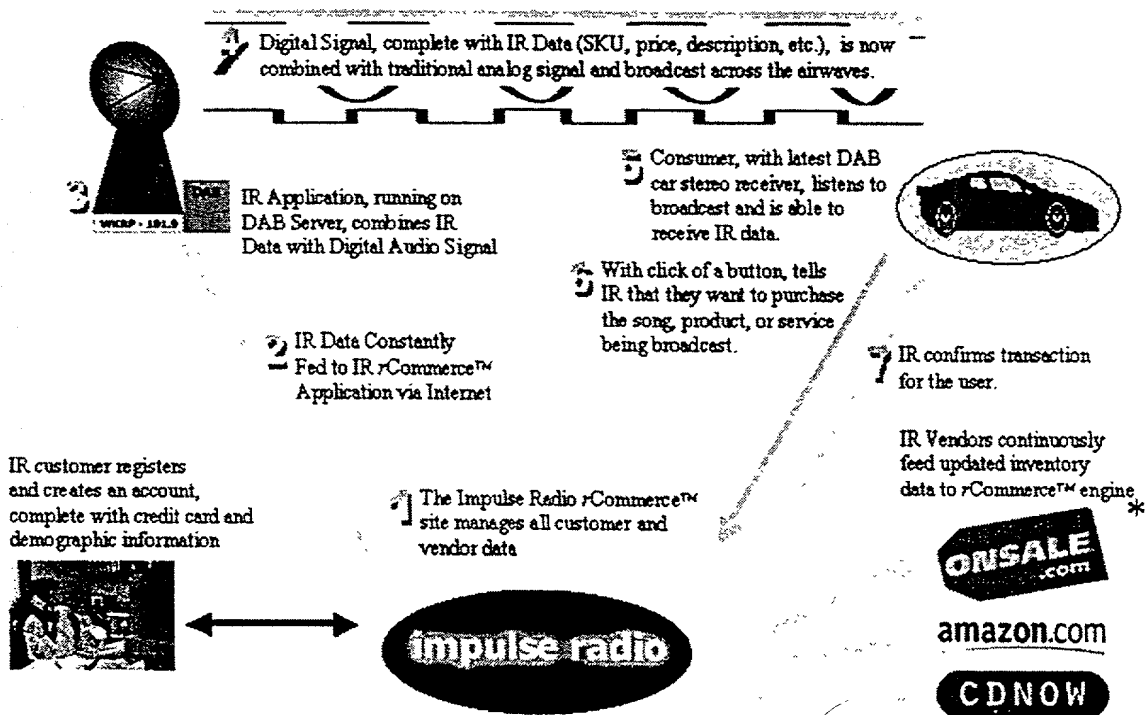


FIGURE 1

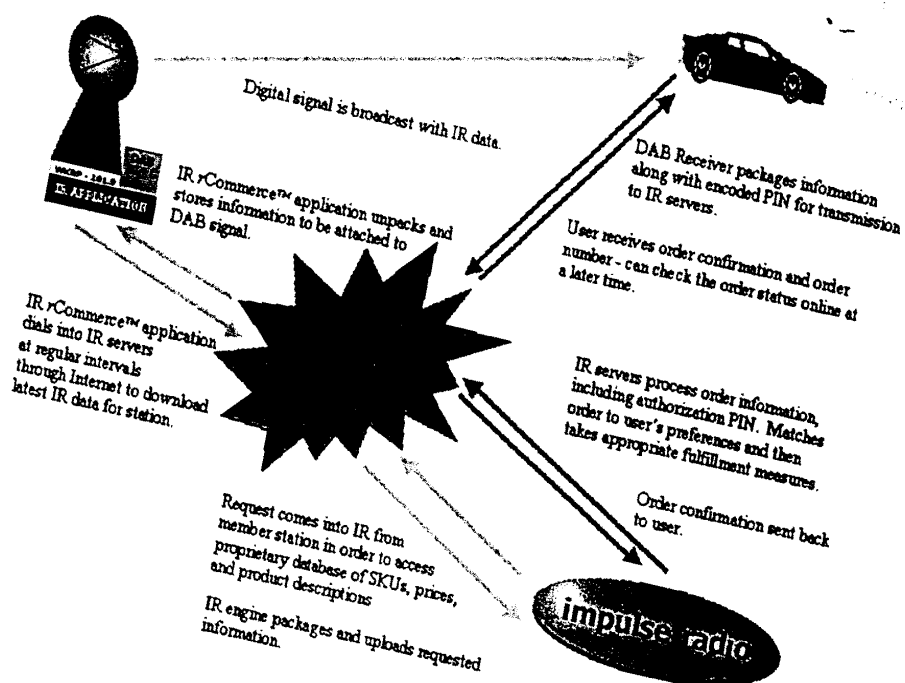
rCommerce Overview



*Vendor logos for illustration purposes only

FIGURE 2

rCommerce Overview



<!ELEMENT AudioSpace (DigitalCopySet+) >

<!ELEMENT DigitalCopy (Display | DisplayCode | bg | layout | timeLength)* >

<!ATTLIST DigitalCopy id (100097 | 100099 | 100101) #REQUIRED >

<!ATTLIST DigitalCopy name (adline0 | adline1 | adline2 | adline3) #REQUIRED >

<!ELEMENT DigitalCopySet (name, DigitalCopy+) >

<!ATTLIST DigitalCopySet frame NMTOKEN #REQUIRED >

<!ELEMENT Display (img | text)* >

<!ELEMENT DisplayCode (#PCDATA) >

<!ATTLIST DisplayCode type CDATA #FIXED "text/html" >

<!ELEMENT bg EMPTY >

<!ATTLIST bg color (000069 | 000099) #REQUIRED >

<!ELEMENT img (src) >

<!ELEMENT layout EMPTY >

<!ATTLIST layout halign NMTOKEN #FIXED "center" >

<!ATTLIST layout valign (center | top) #REQUIRED >

<!ELEMENT name (#PCDATA) >

<!ELEMENT src (#PCDATA) >

<!ELEMENT text (#PCDATA) >

<!ATTLIST text color NMTOKEN #REQUIRED >

<!ATTLIST text font NMTOKEN #FIXED "SansSerif" >

<!ATTLIST text size NMTOKEN #REQUIRED >

<!ELEMENT timeLength (#PCDATA) >

FIGURE 3

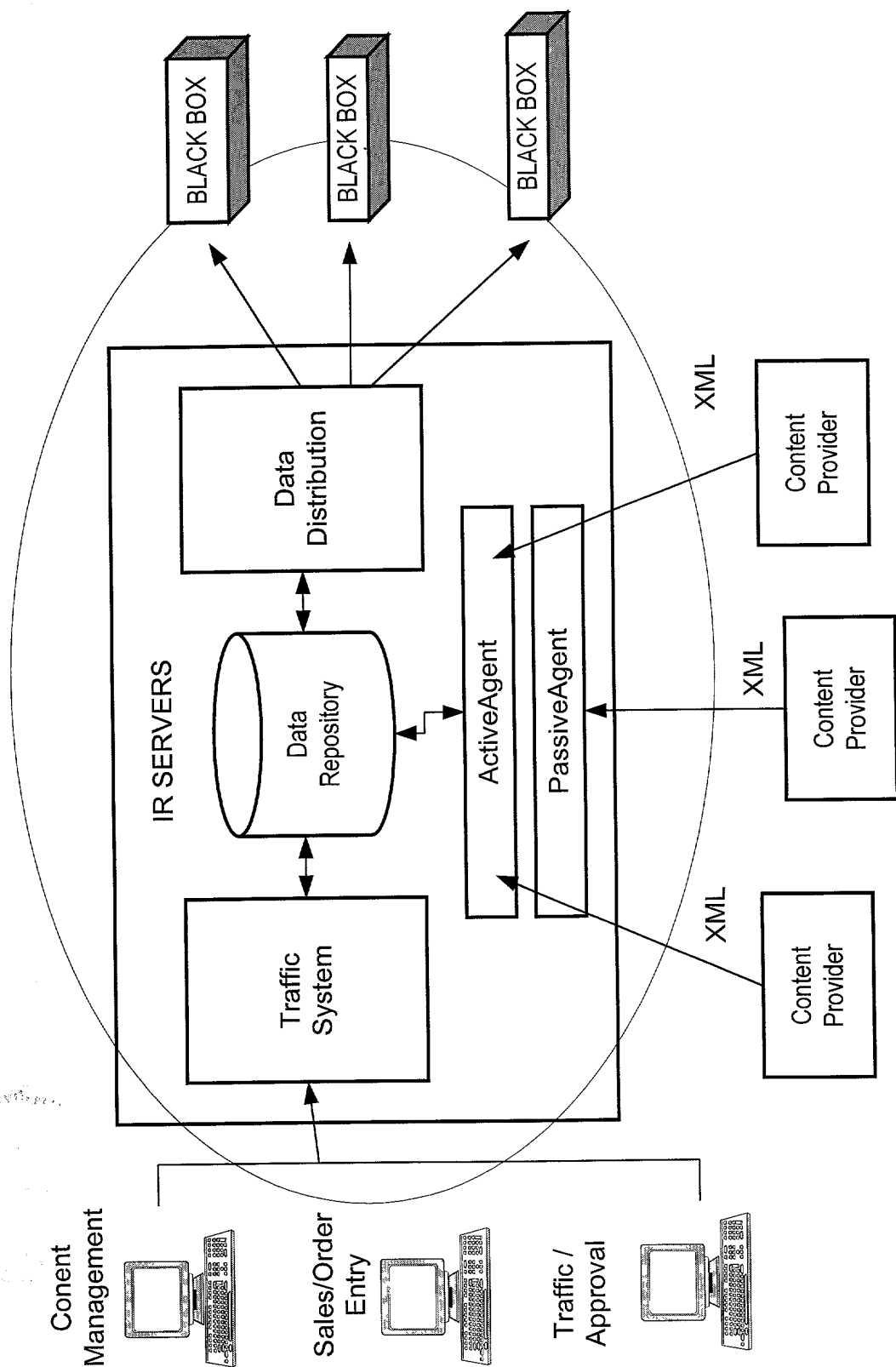


FIG. 4

The diagram illustrates the architecture of the IR Servers. The main components are:

- IR SERVERS** (Overall System):
 - Traffic System**: Interacts with the Data Repository.
 - Data Repository**: Central storage for data.
 - Data Distribution**: Manages the distribution of data.
 - Active Agent**: Manages active agents.
 - Passive Agent**: Manages passive agents.
- Data Repository Detail (Circular Inset)**:
 - Masters**: Traffic Master, News Master, and Order Master.
 - Taskpool**: A central pool of tasks.
 - Work Units**: Multiple units that execute tasks from the taskpool.
 - Communication**: RMI (Remote Method Invocation) is used for communication between the masters and the taskpool, and between the taskpool and the work units.

1

Data Transfer

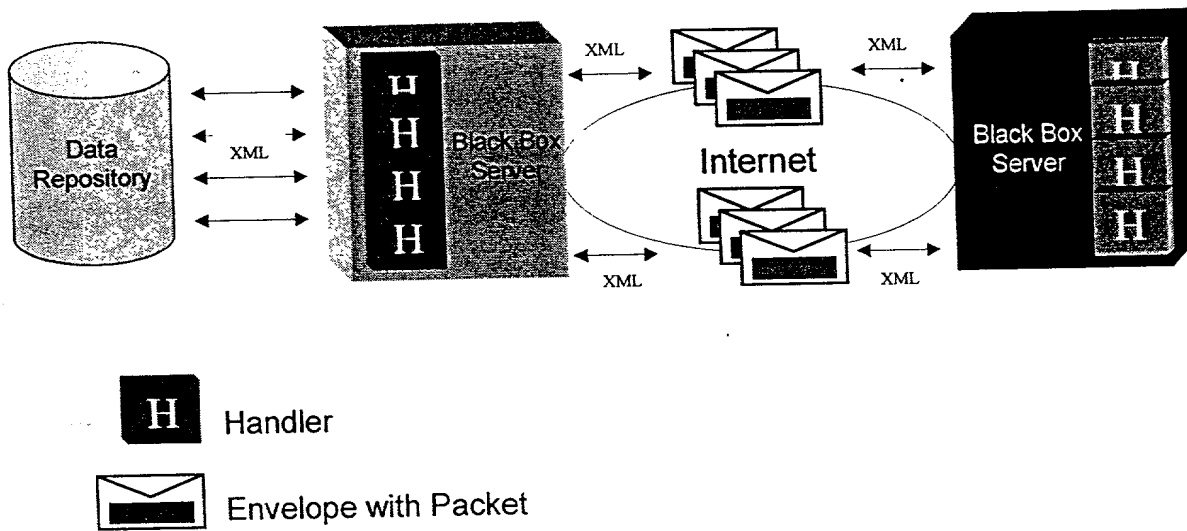


FIGURE 6

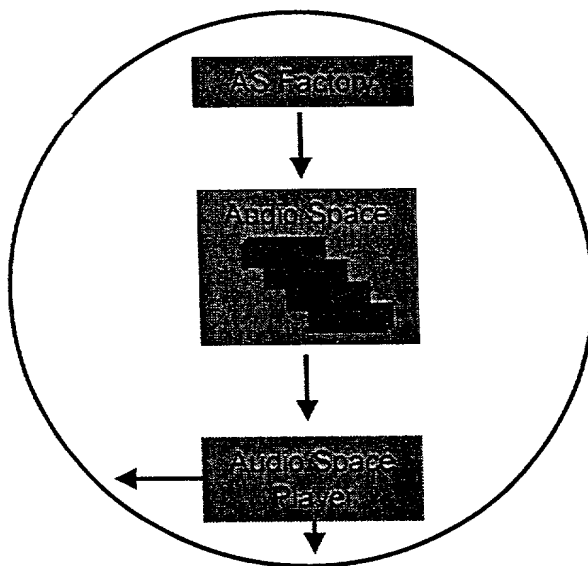
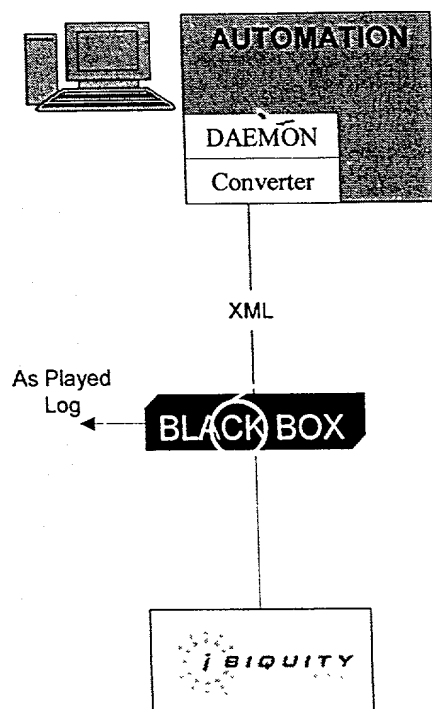


FIGURE 7

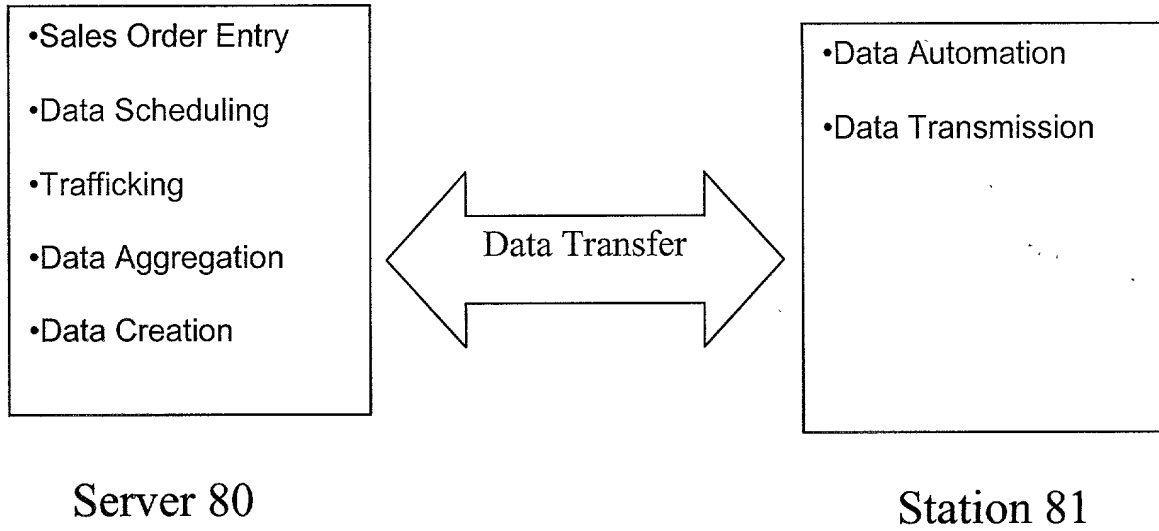


FIG. 8

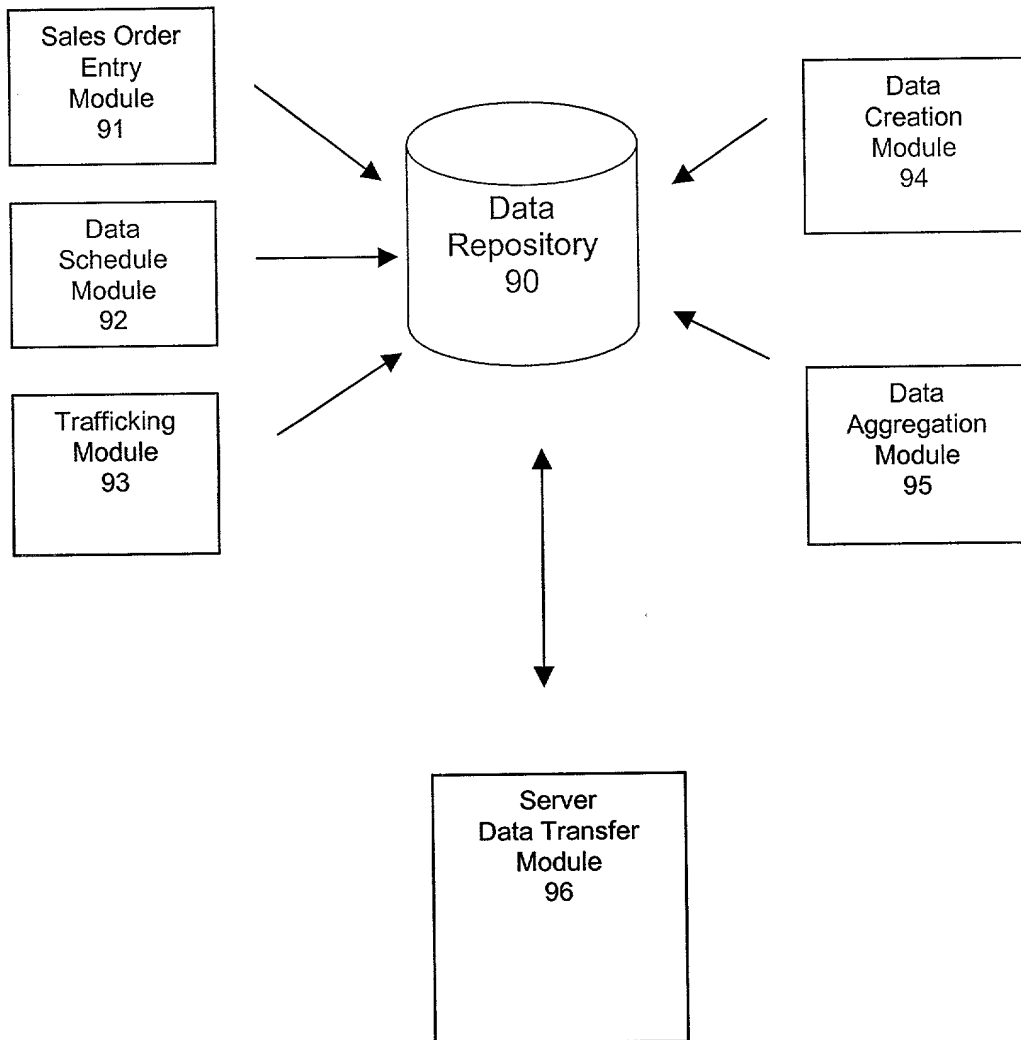
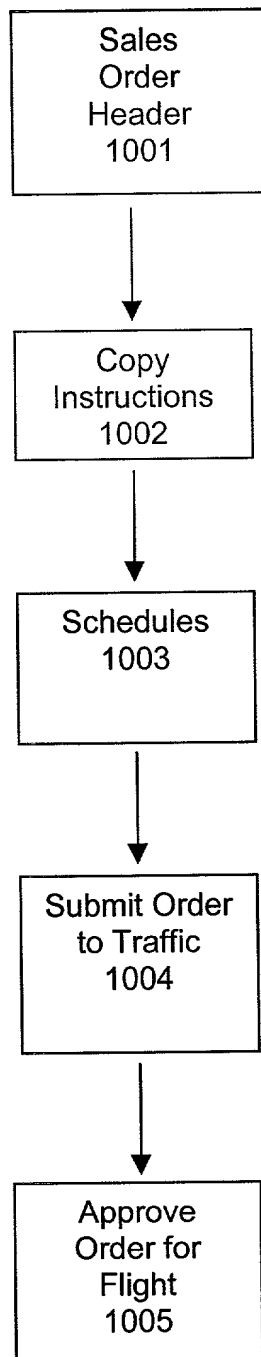
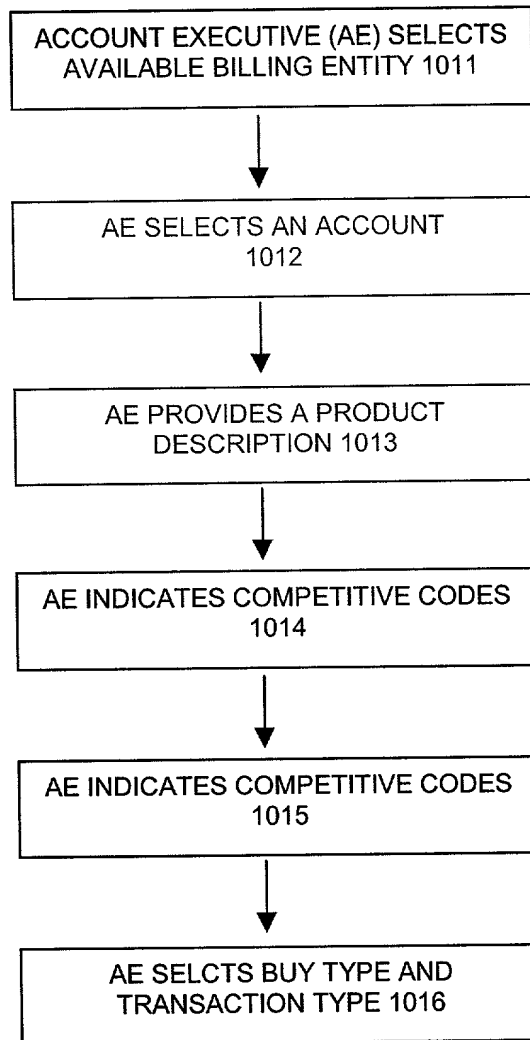


FIG. 9



1000

FIG. 10A



1010

FIG. 10B

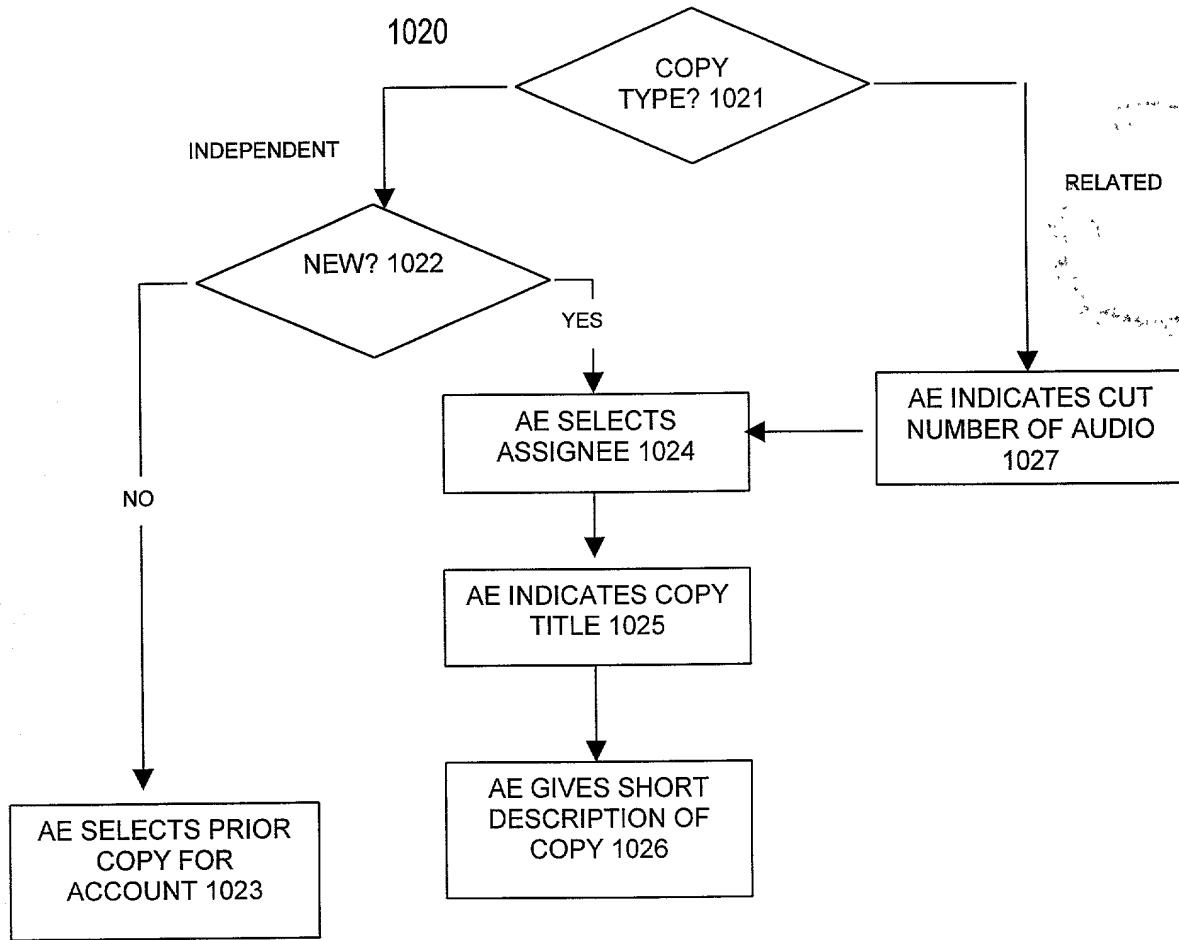
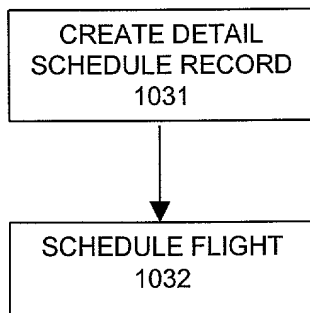


FIG. 10C



1030

FIG. 10D

1040 -

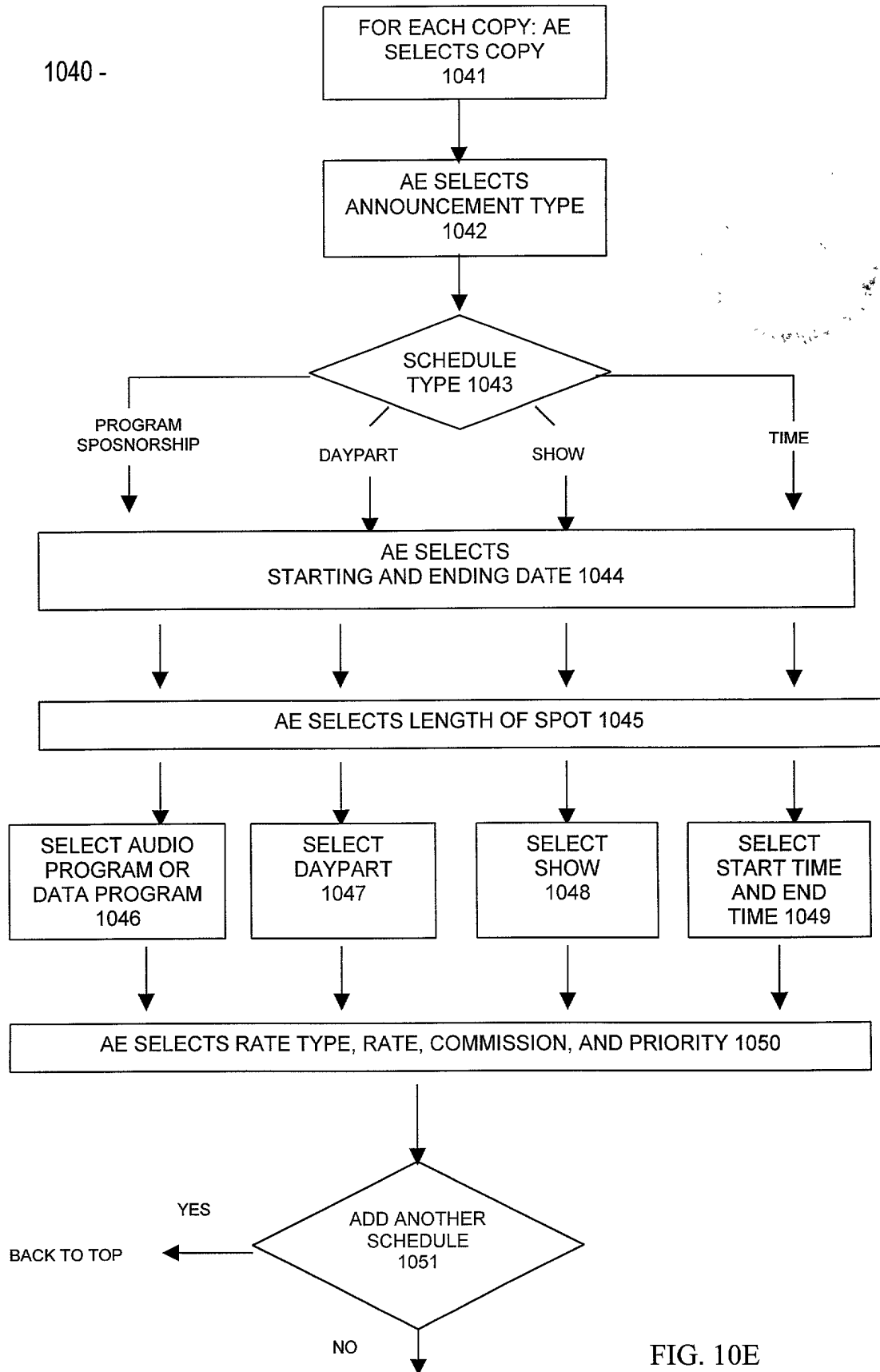


FIG. 10E

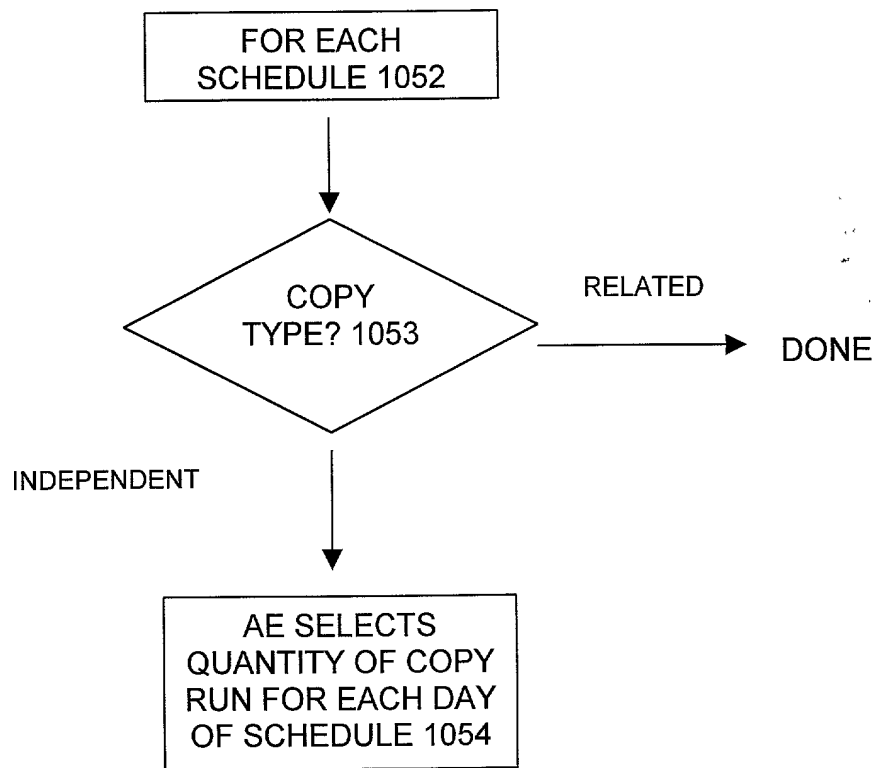


FIG. 10F

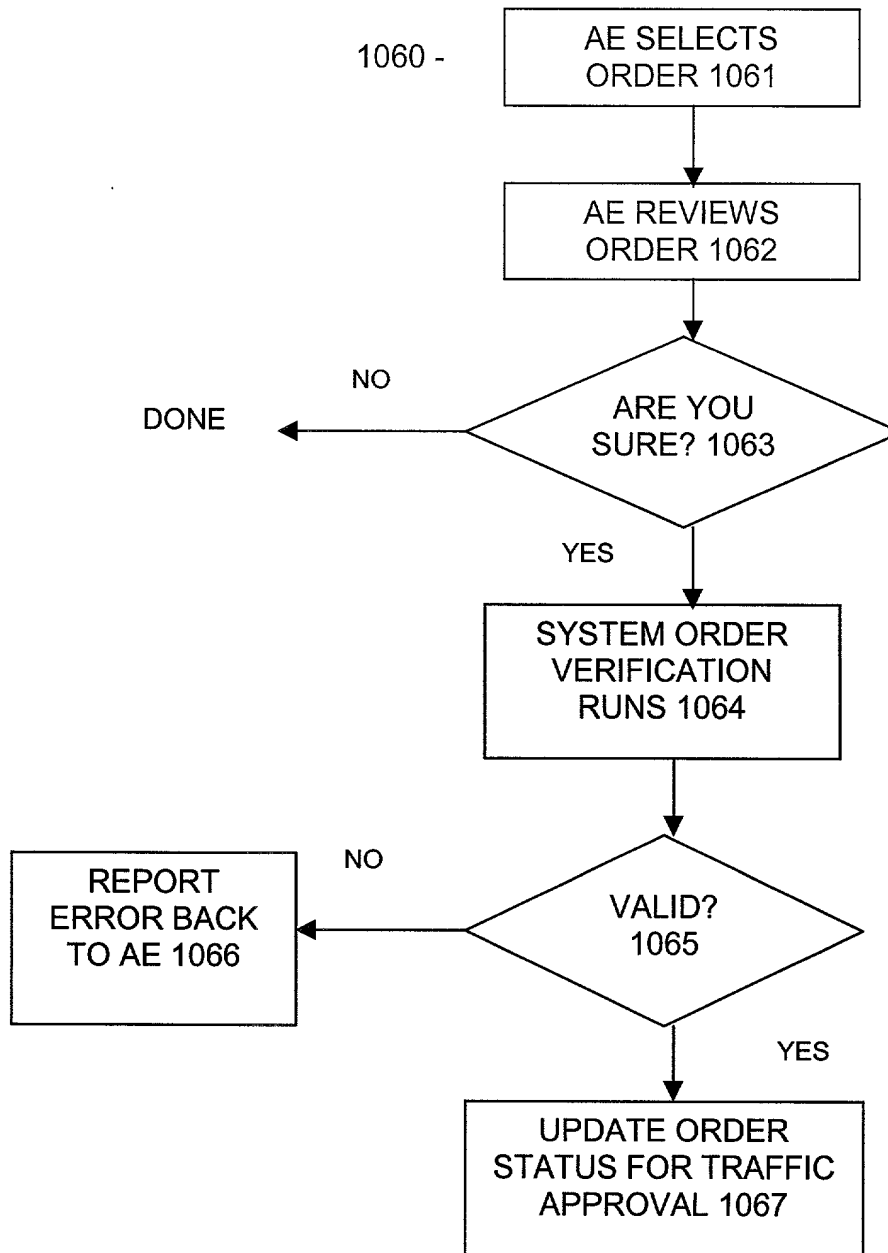


FIG. 10G

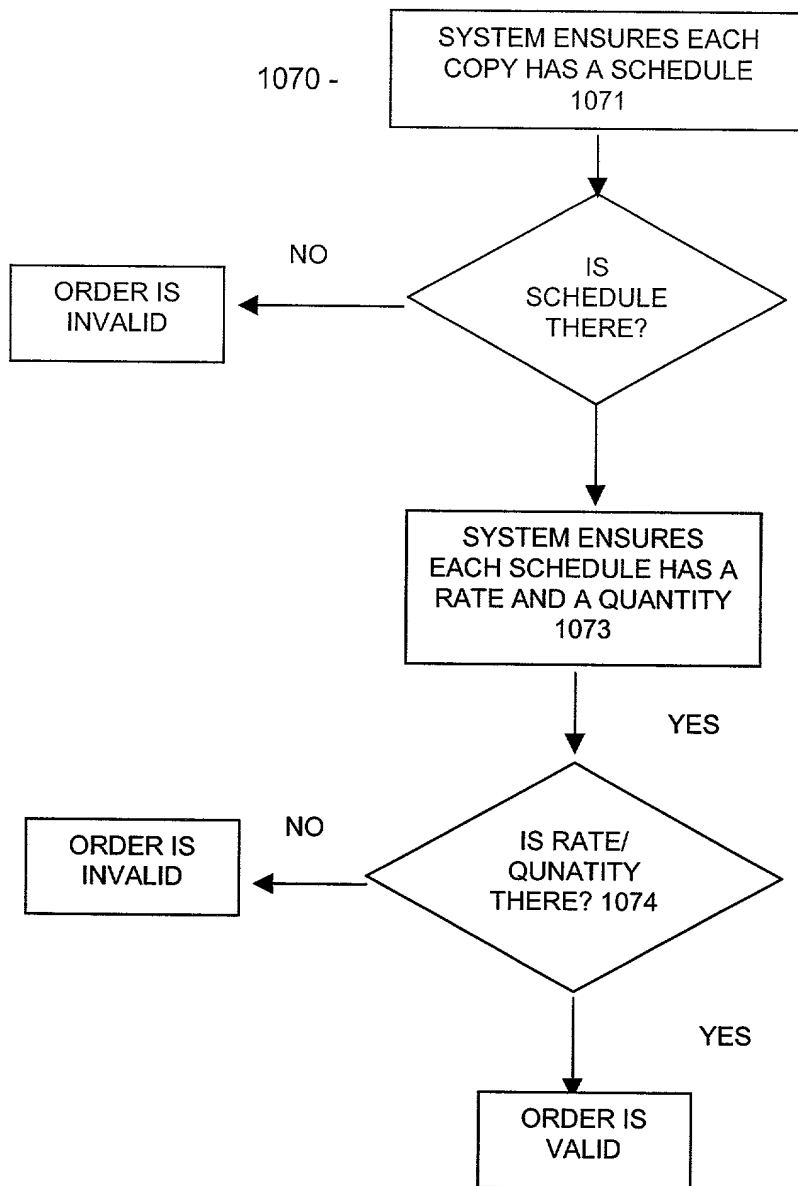


FIG. 10H

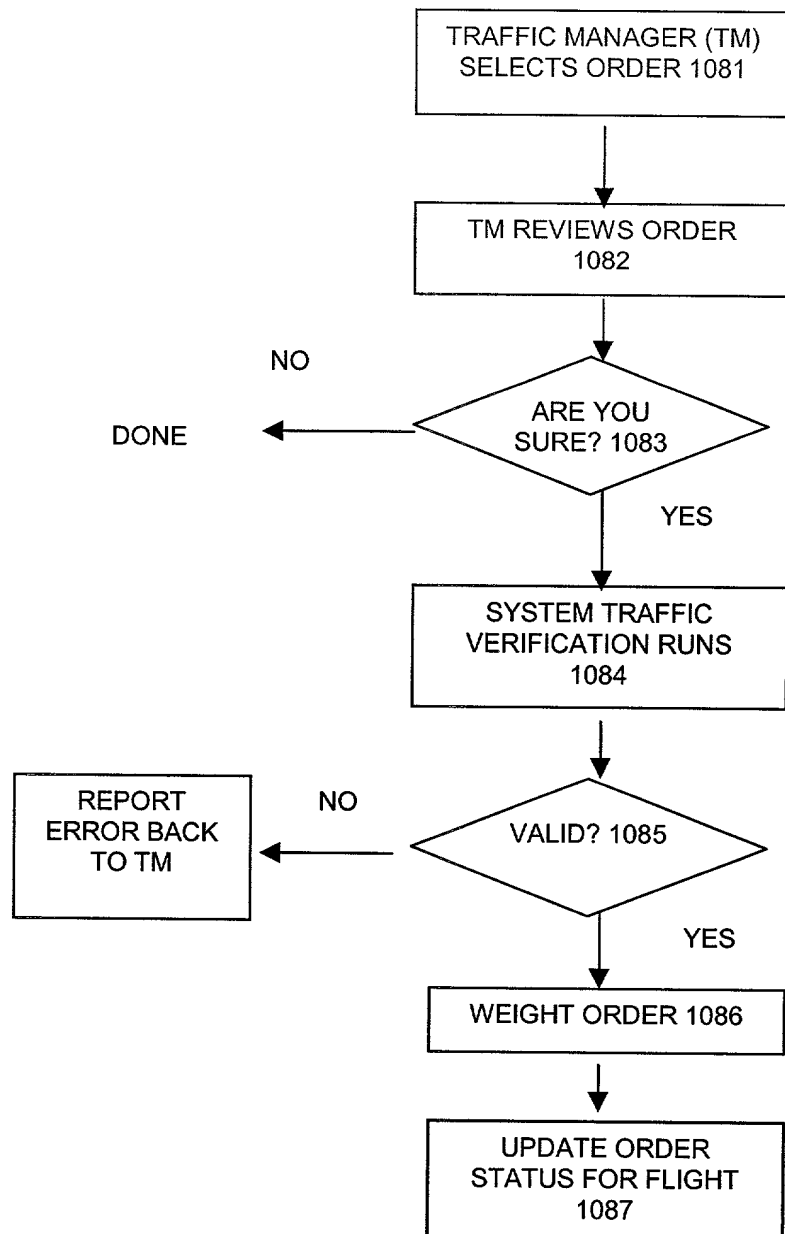


FIG. 10I

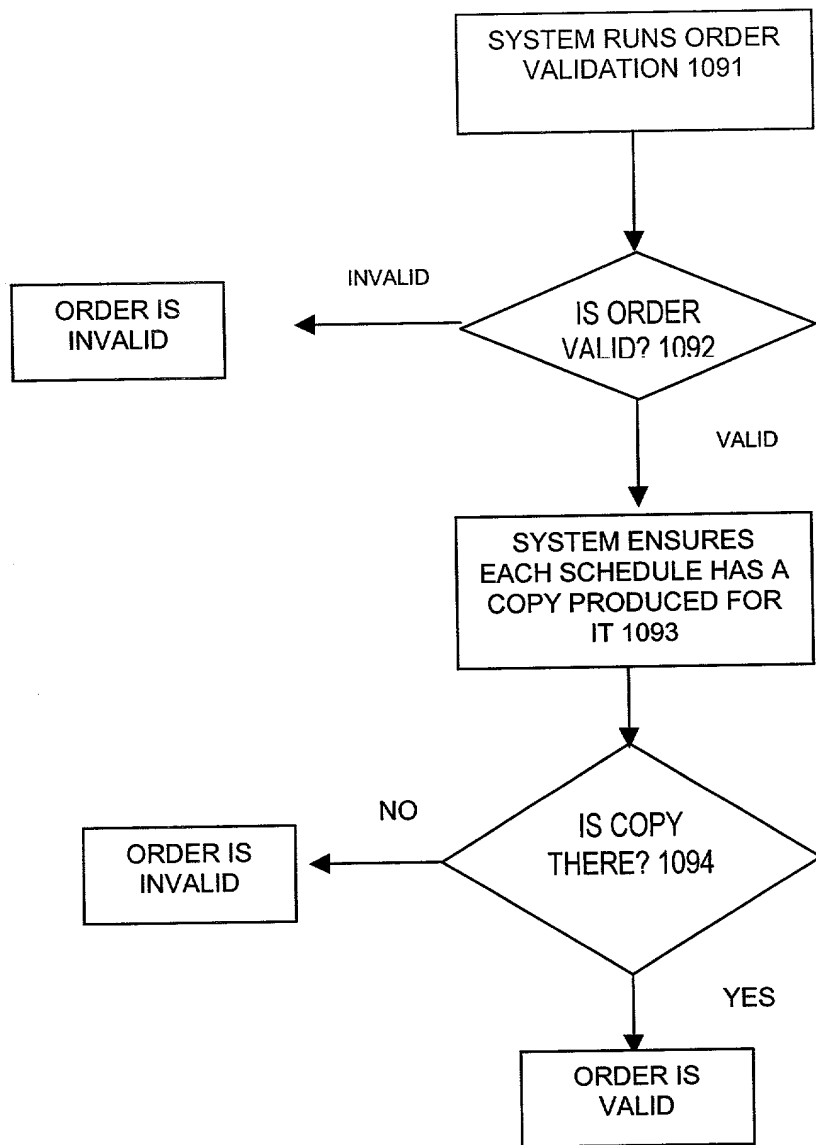
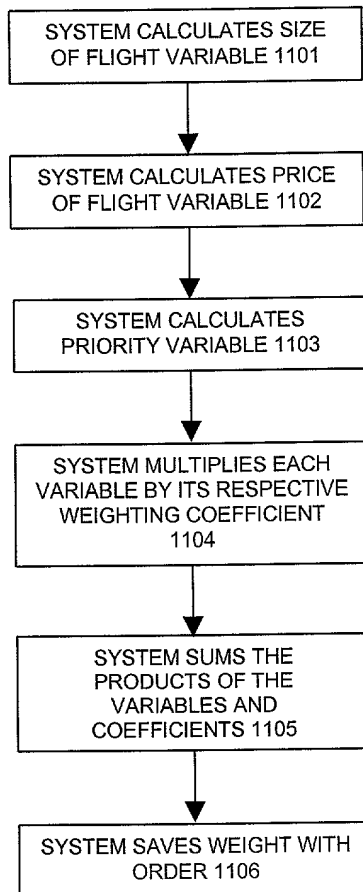
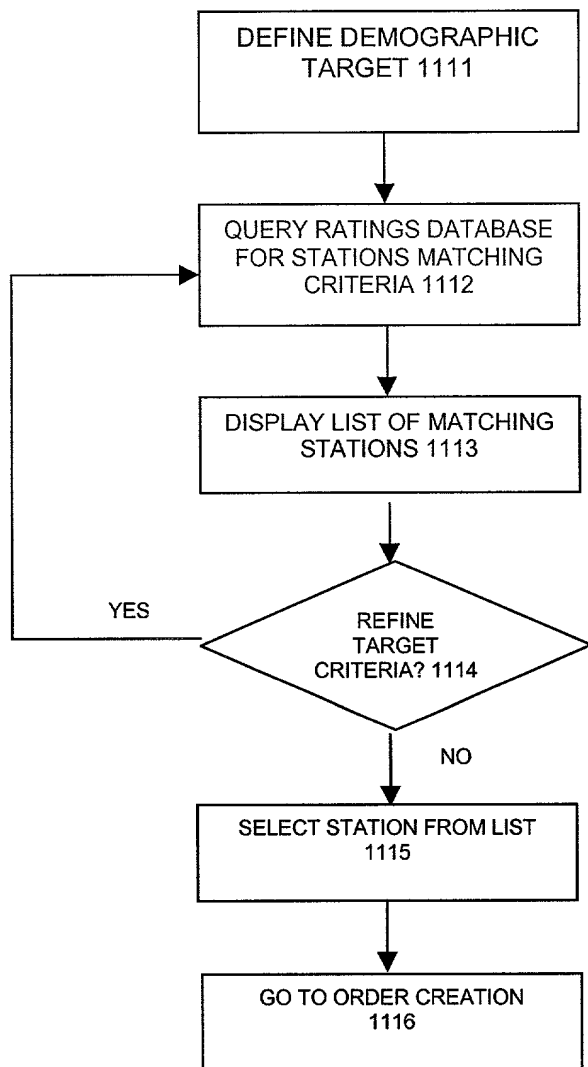


FIG. 10J



1100

FIG. 10K



1110

FIG. 10L

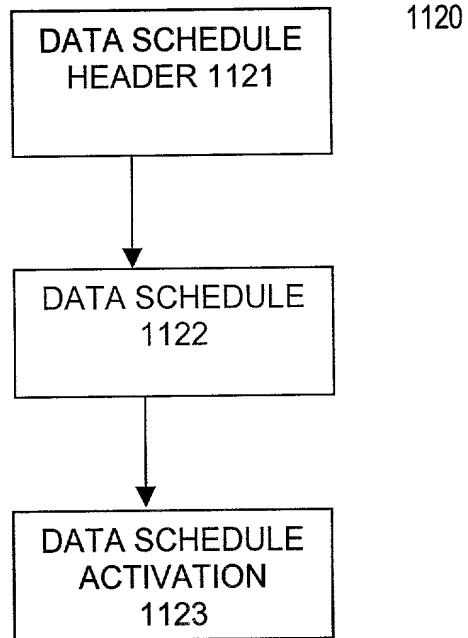
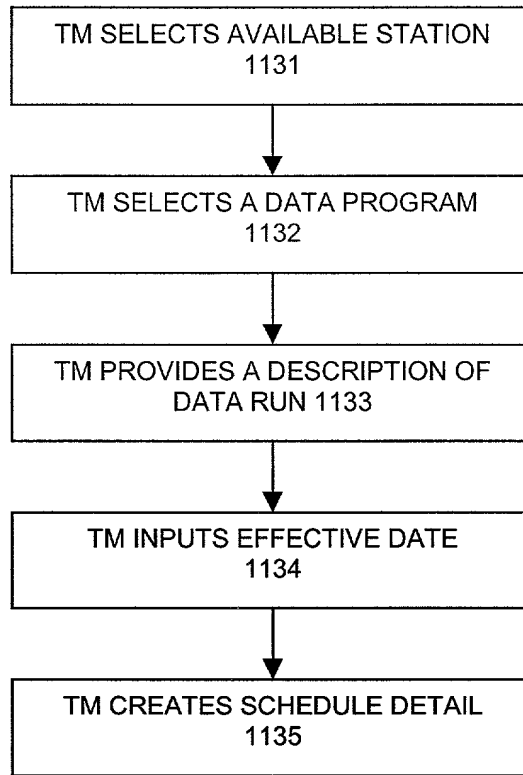


FIG. 11A



1130

FIG. 11B

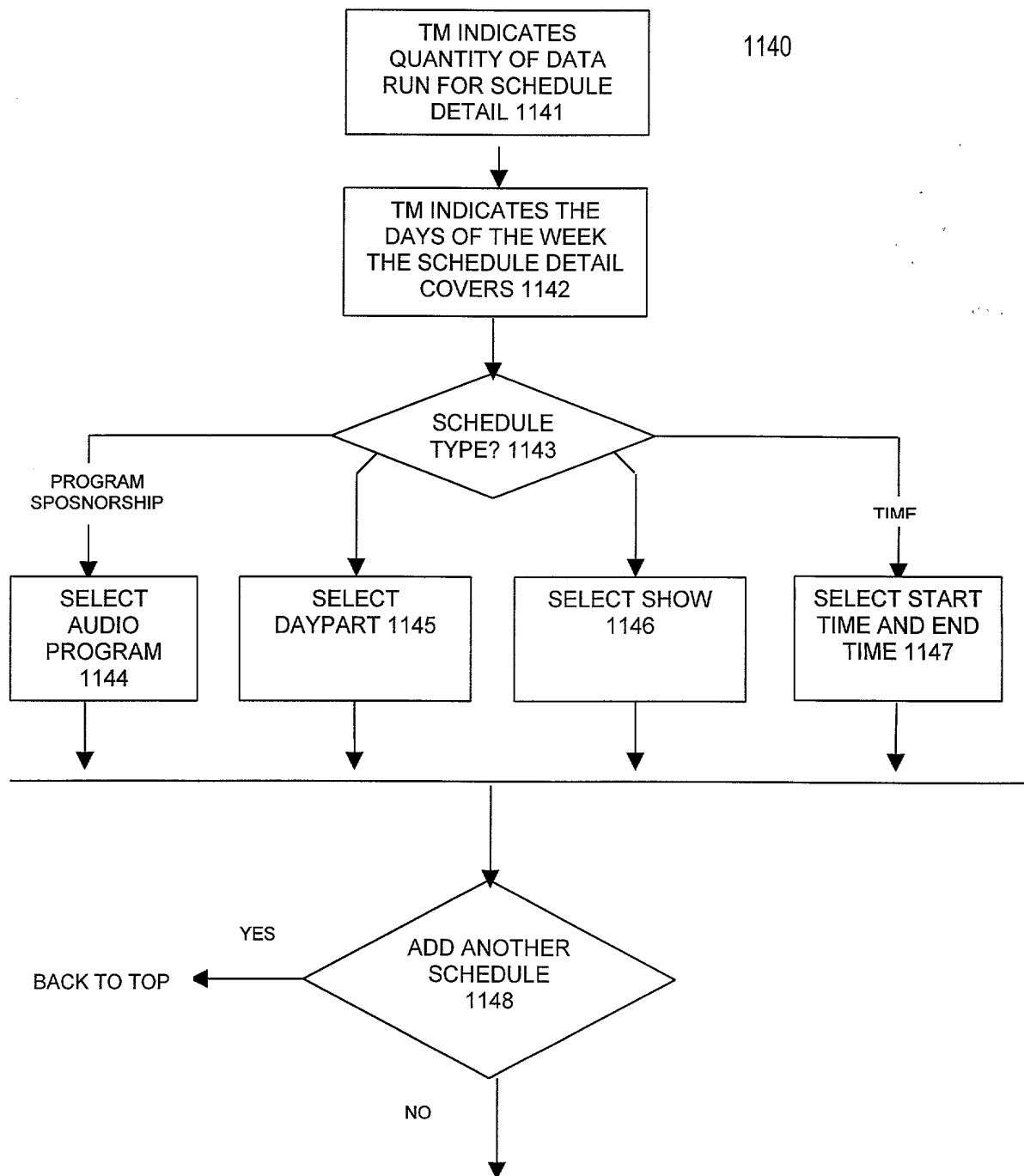


FIG. 11C

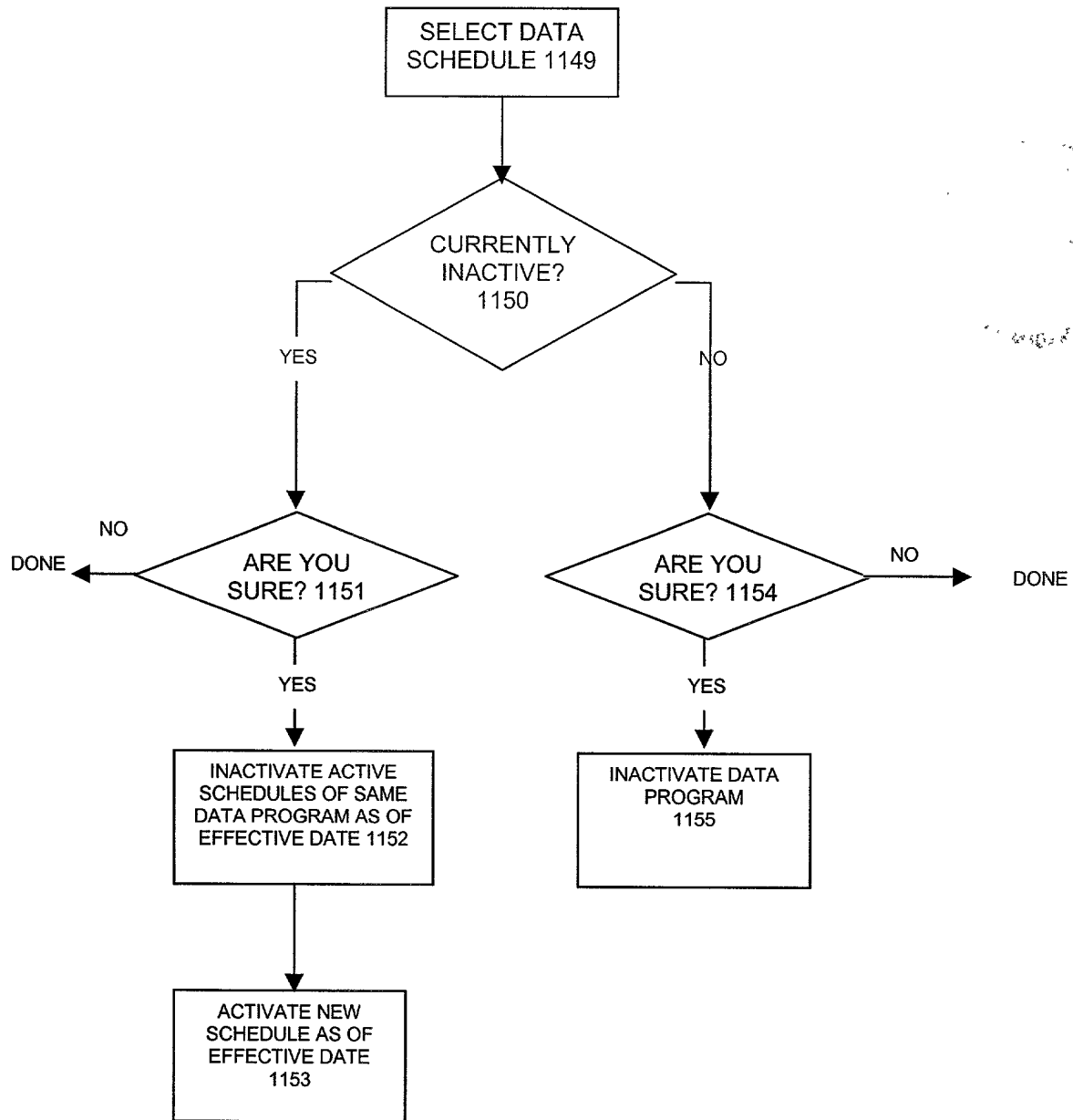


FIG. 11D

1161	1162	1163	1164	1165	1166
AudioCopyPool_id	Order_Detail_ID	AudCopyPool_StartMillis	AudCopyPool_Endmillis	StationCodeMap_StationCutID	AudioFrame_id
142784	144310	9.89993E+11	9.90058E+11		5
142783	144309	9.90079E+11	9.90144E+11		5
142782	144308	9.90166E+11	9.9023E+11		5
142781	144307	9.90252E+11	9.90317E+11		5
142780	144306	9.90338E+11	9.90403E+11		5
142779	144305	9.90425E+11	9.9049E+11		5
142778	144304	9.90598E+11	9.90662E+11		5
142777	144303	9.90684E+11	9.90749E+11		5
142776	144302	9.9077E+11	9.90835E+11		5
142775	144301	9.90857E+11	9.90922E+11		5
142774	144300	9.90943E+11	9.91008E+11		5
142773	144299	9.9103E+11	9.91094E+11		5
142772	144298	9.91116E+11	9.91181E+11		5
142771	144297	9.91202E+11	9.91267E+11		5

FIG. 11E1

[illegible][illegible]

FIG. 11E2

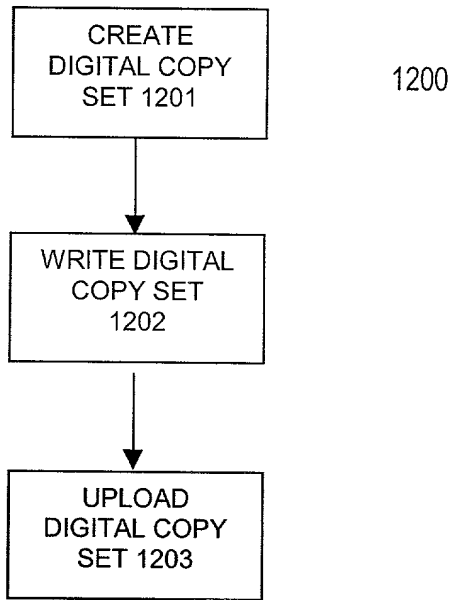


FIG. 12A

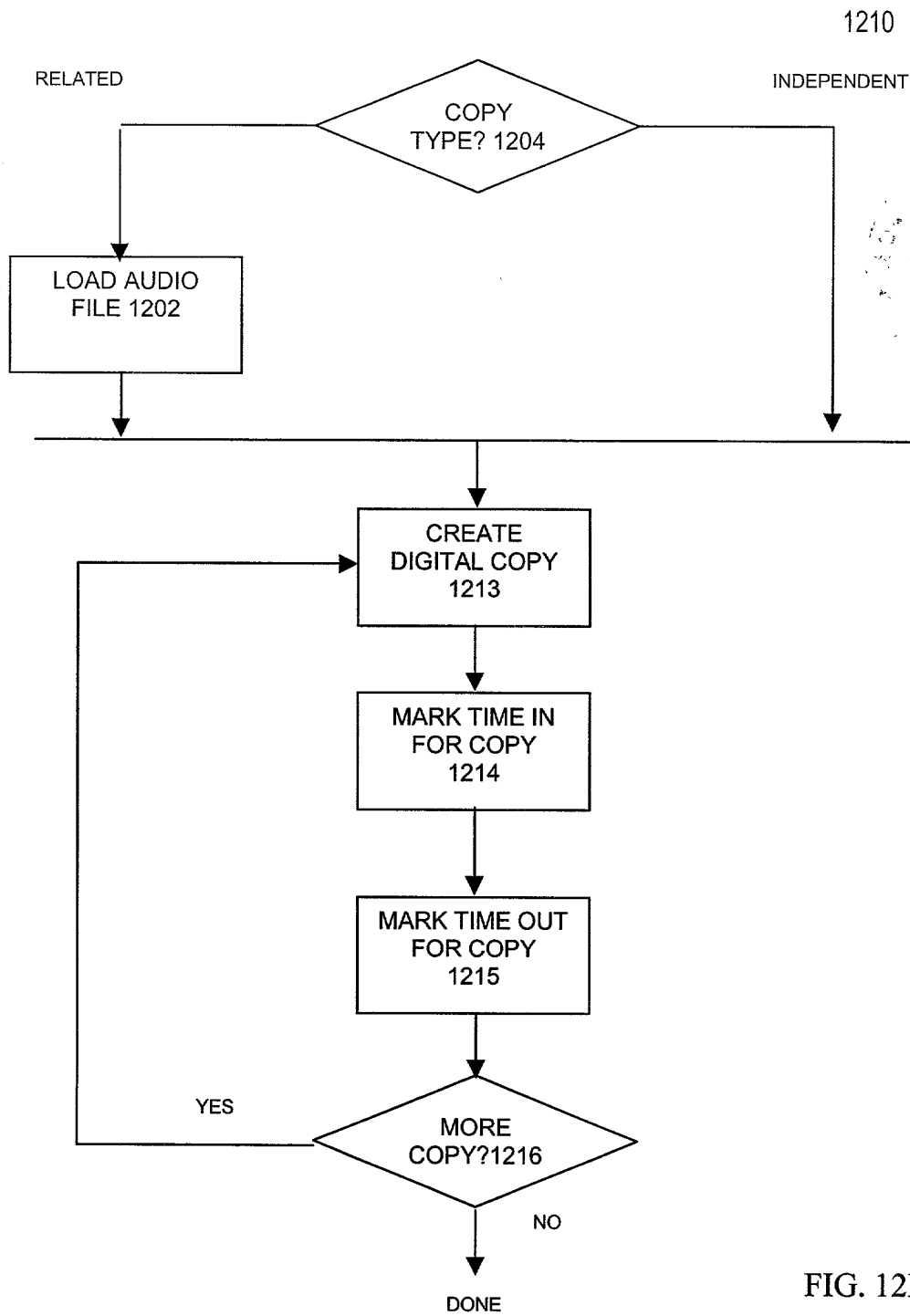


FIG. 12B

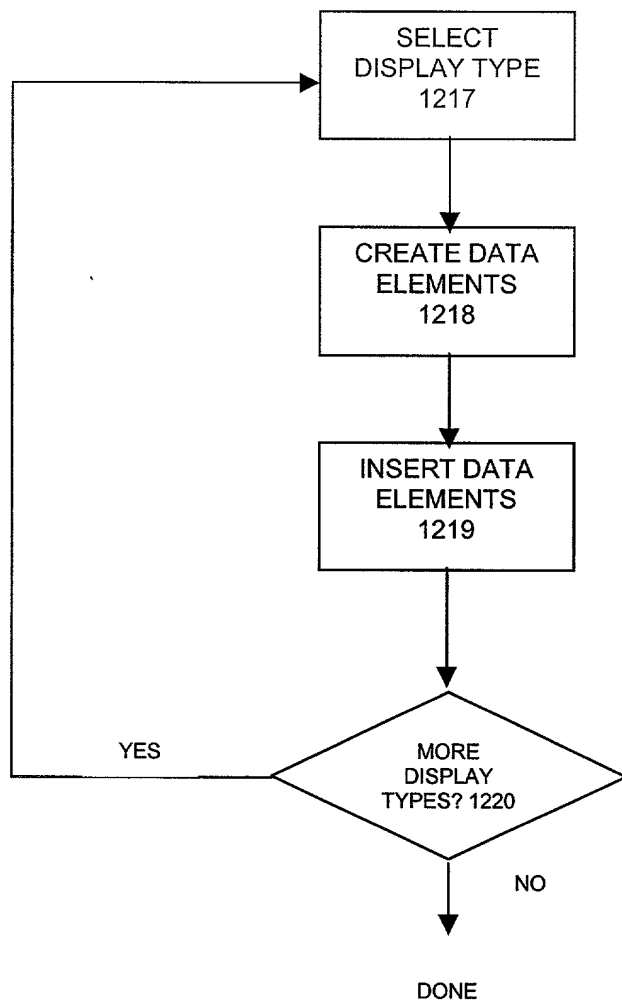


FIG. 12C

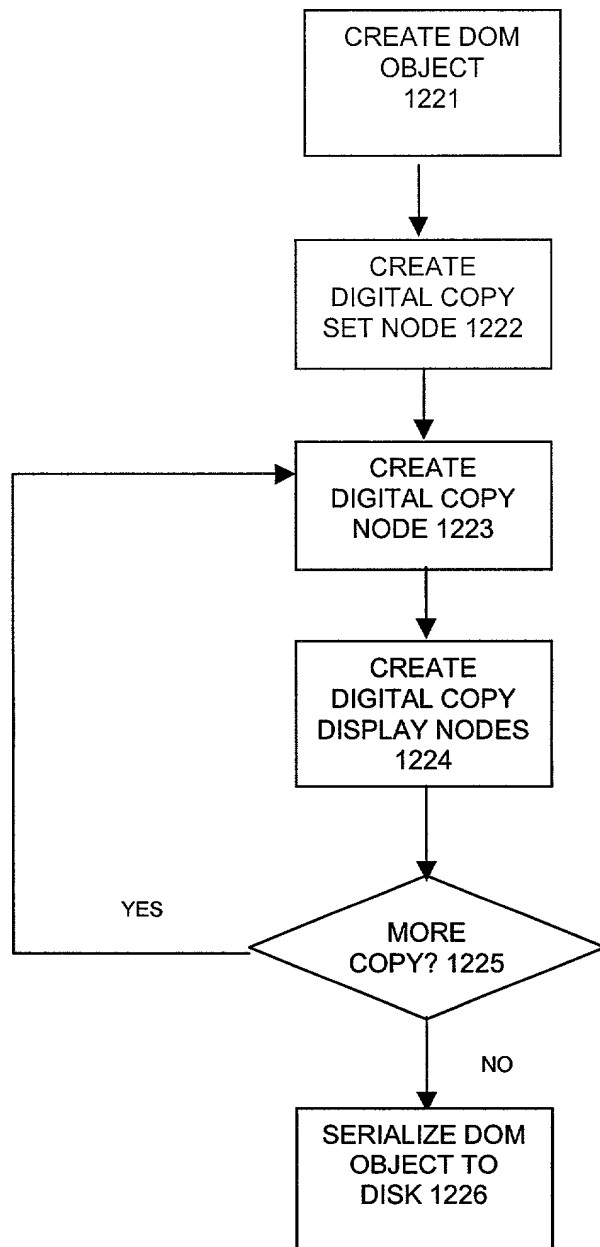


FIG. 12D

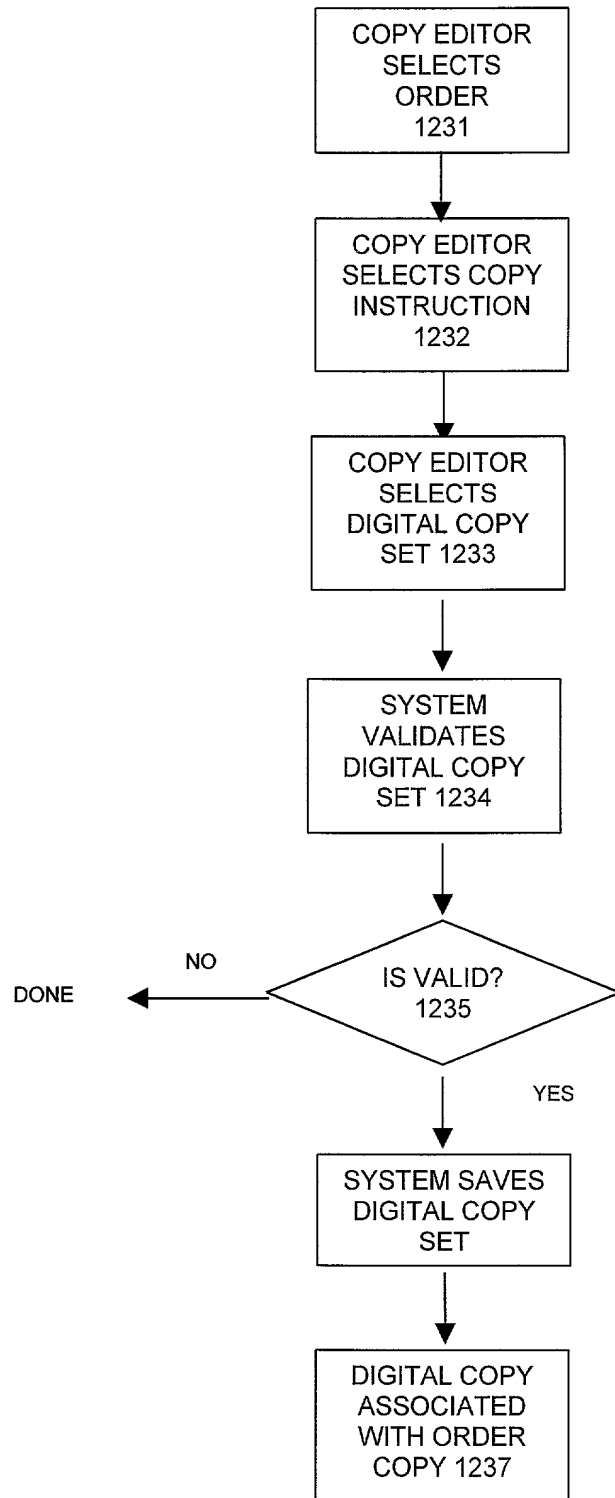
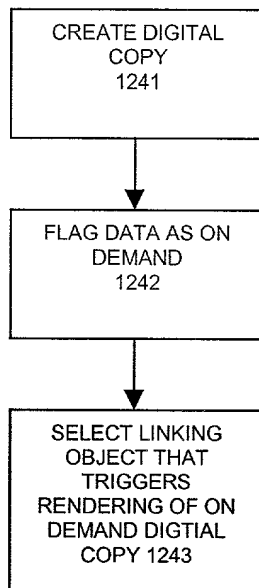


FIG. 12E



1240

FIG. 12F

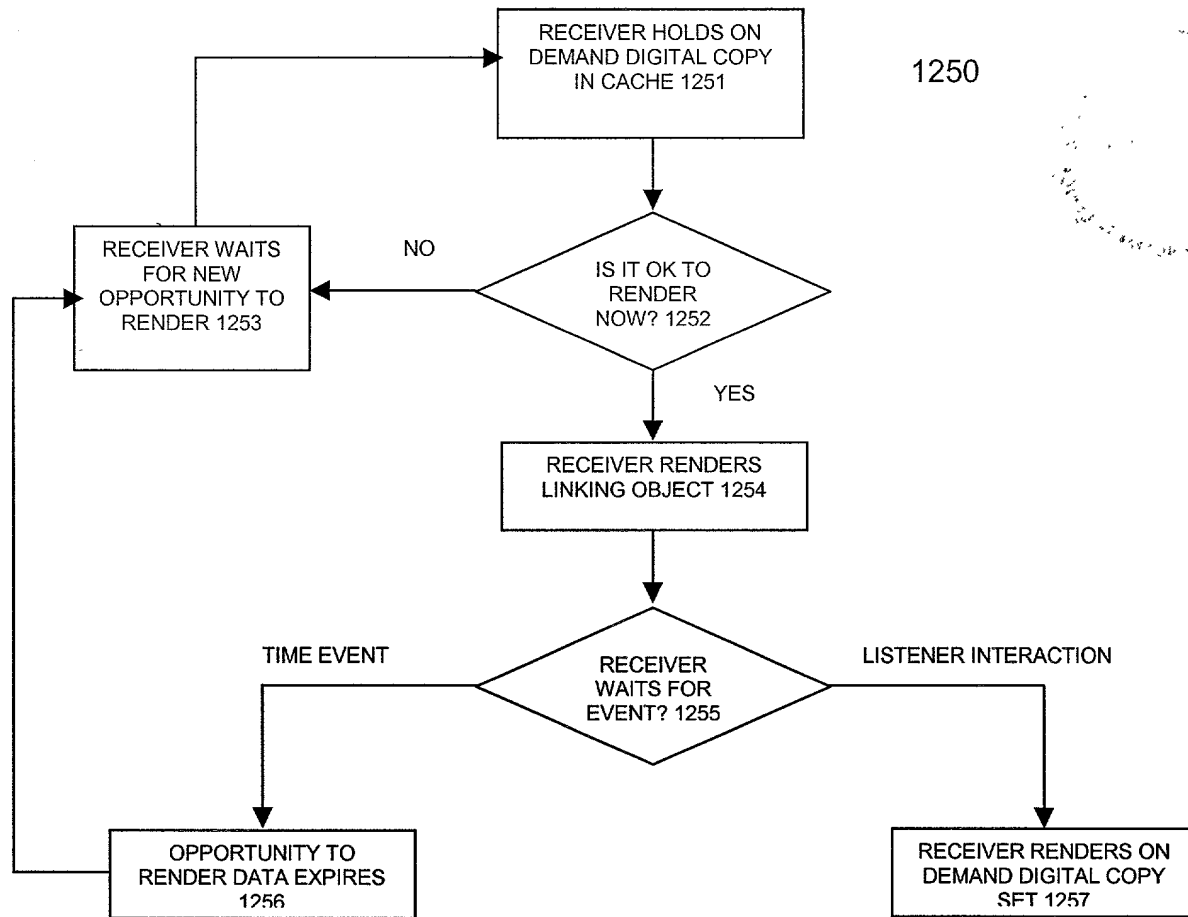


FIG. 12G

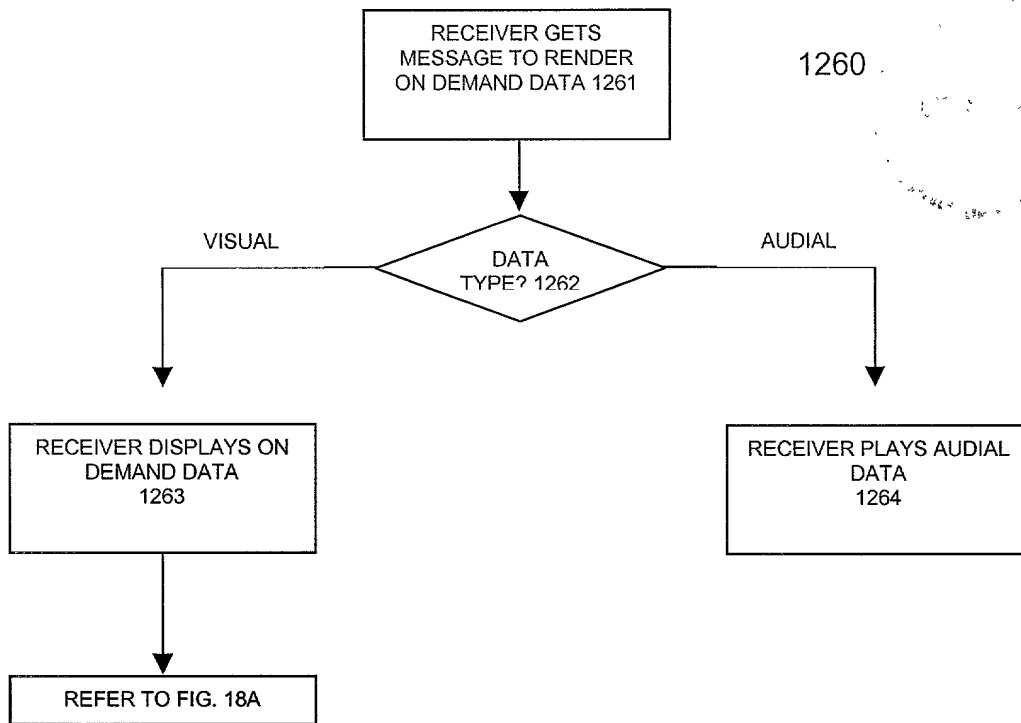


FIG. 12H

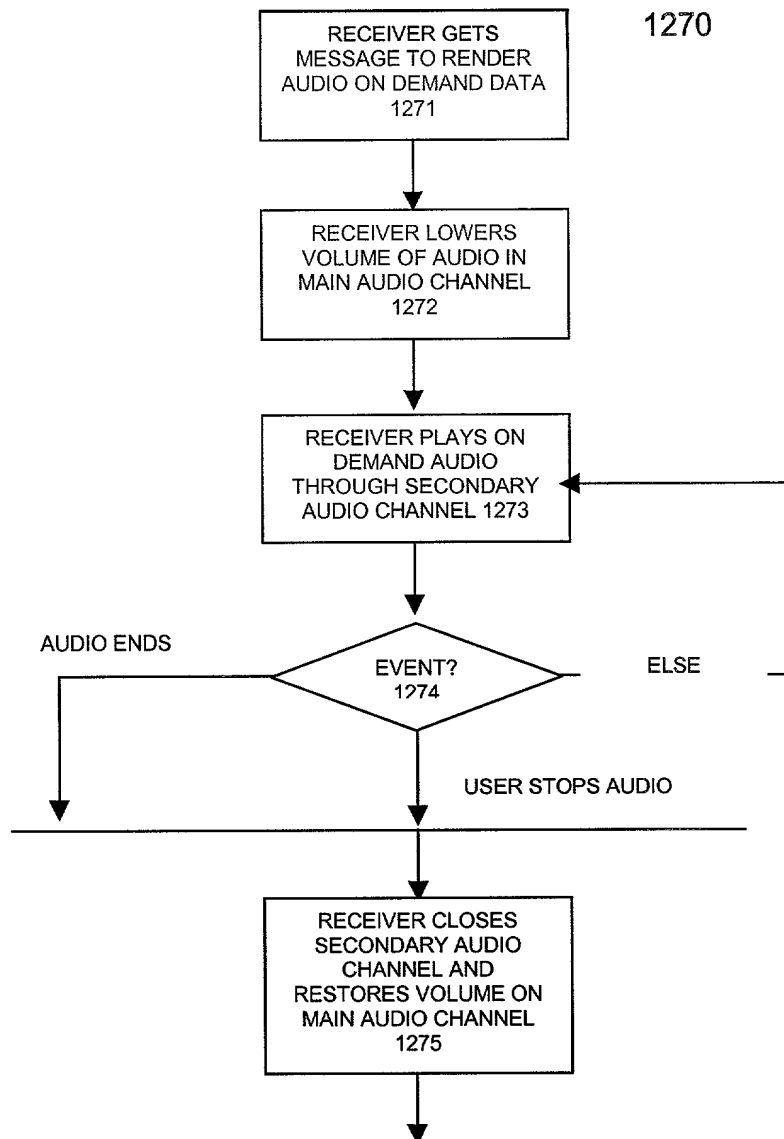


FIG. 12I

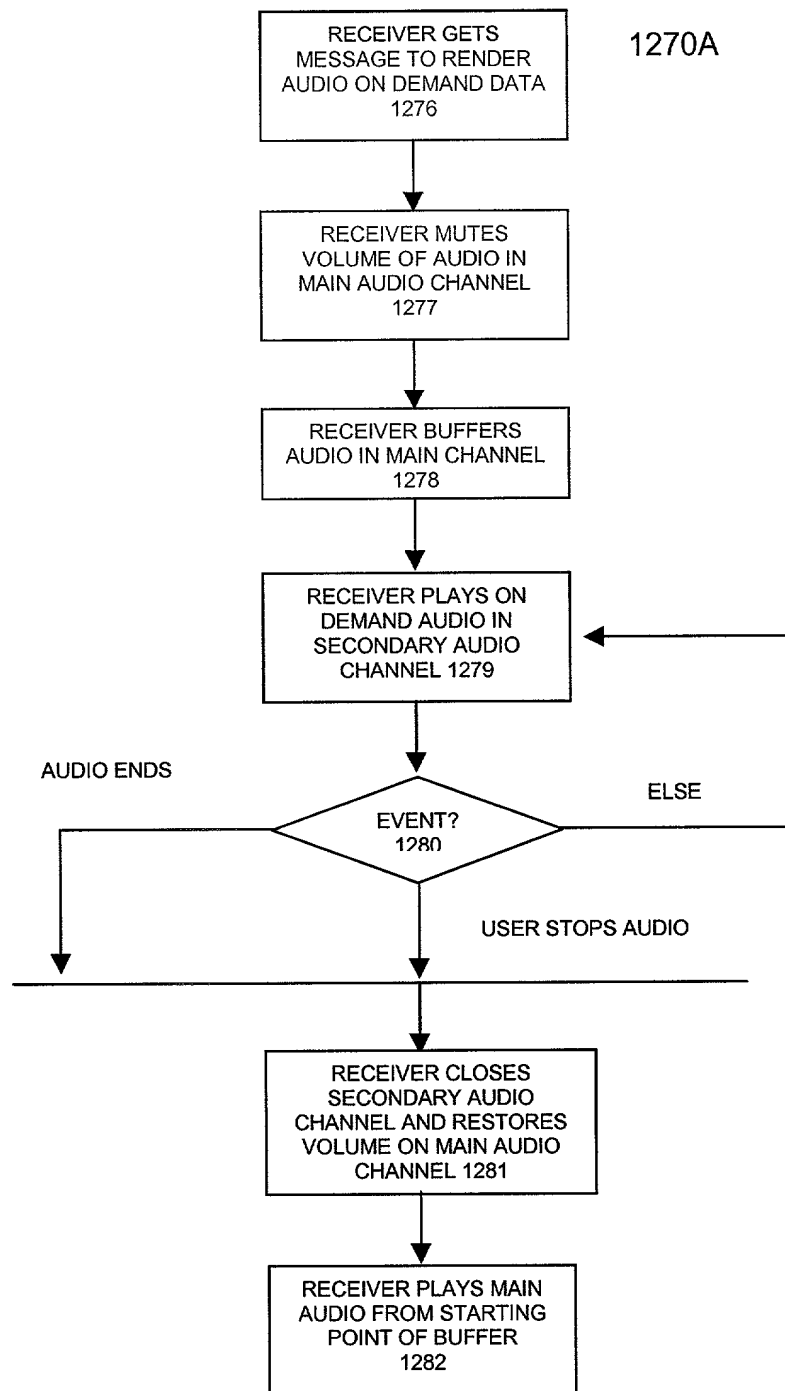


FIG. 12J

```
<!ELEMENT DigitalCopySet ( id | name | ttl | cut | DigitalCopy+ )*>
<!ATTLIST DigitalCopySet frame NMTOKEN #IMPLIED>
<!ELEMENT id ( #PCDATA )>
<!ELEMENT name ( #PCDATA )>
<!ELEMENT ttl ( #PCDATA )>
<!ELEMENT cut ( #PCDATA )>

<!ENTITY % DigitalCopy.dtd SYSTEM "getResource://DigitalCopy.dtd">
  %DigitalCopy.dtd;
```



FIG. 12K

<!ELEMENT DigitalCopy (DisplayData | minTimeLength | optimalTimeLength)* >
<!ATTLIST DigitalCopy name CDATA #REQUIRED >
<!ATTLIST DigitalCopy id NMTOKEN #IMPLIED>

<!ELEMENT DisplayData (#PCDATA) >
<!ATTLIST DisplayData type CDATA #REQUIRED >

<!ELEMENT minTimeLength (#PCDATA) >
<!ELEMENT optimalTimeLength (#PCDATA) >

FIG. 12L

<?xml version="1.0" encoding="UTF-8"?>
 <!DOCTYPE DigitalCopySet PUBLIC "-//Impulse Radio, Inc.//DTD DigitalCopySet//EN" 1292
 "getResource://DigitalCopySet.dtd">
 <DigitalCopySet frame="right">
 <name>Big_Als</name>
 <ttl>98765320000</ttl>
 <DigitalCopy id="0" name="Big Al's - open">
 <DisplayData type="text/html"><body leftmargin="0"
 topmargin="0"> <table> <tr>
 <td> <img
 src="http://www.impulseradio.com/images/big_als.gif">
 </td> </tr> </table> </body></DisplayData>
 <optimalTimeLength>5000</optimalTimeLength>
 </DigitalCopy>
 <DigitalCopy id="0" name="Big Al's - copy1">
 <DisplayData type="text/html"><body leftmargin="0"
 topmargin="0"> <table> <tr>
 <td> <img
 src="http://www.impulseradio.com/images/big_als_bg.gif">
 </td> </tr> </table> </body></DisplayData>
 <optimalTimeLength>15000</optimalTimeLength>
 </DigitalCopy>
 <DigitalCopy id="0" name="Big Al's - close">
 <DisplayData type="text/html"><body leftmargin="0"
 topmargin="0"> <table> <tr>
 <td> <img
 src="http://www.impulseradio.com/images/big_als.gif">
 </td> </tr> </table> </body></DisplayData>
 <optimalTimeLength>10000</optimalTimeLength>
 </DigitalCopy>
 </DigitalCopySet>

FIG. 12M

1293A	1293B	1293C	1293D	1293E	1293F
DigitalCopyPool_id	Order_Detail_ID	DigCopyPool_StartMillis	DigCopyPool_Endmillis	AudioCodePool_Order_Detail_ID	DigitalFrame_id
137421	139438	9.86086E+11	9.86086E+11	301	1
137420	139437	9.85997E+11	9.85997E+11	301	1
137419	139436	9.86515E+11	9.86515E+11	301	1
137510	139527	9.86515E+11	9.86515E+11	300	1
137418	139435	9.86429E+11	9.86429E+11	301	1
137509	139526	9.85997E+11	9.85997E+11	300	1
137417	139434	9.86342E+11	9.86342E+11	301	1
137508	139525	9.86083E+11	9.86083E+11	300	1
137416	139433	9.86256E+11	9.86256E+11	301	1
137479	139496	9.8617E+11	9.8617E+11	300	1
137478	139495	9.86256E+11	9.86256E+11	300	1
137477	139494	9.86342E+11	9.86342E+11	300	1
137454	139471	9.8617E+11	9.8617E+11	301	1
137476	139493	9.86429E+11	9.86429E+11	300	1

1293

FIG. 12N1

1293G	1293H	1293I	1293J	1293K	1293L
DigCopyPool_weight	DC_Set_id	DigCopyPool_QtyDue	DigCopyPool_MinSpacing	Comp_Codes	AudCopyPool_ComSpacing
1	100268	1	60000	10.19	60000
1	100268	1	60000	10.19	60000
1	100268	1	60000	10.19	60000
1	100263	1	60000	2.15	60000
1	100268	1	60000	10.19	60000
1	100263	1	60000	2.15	60000
1	100298	1	60000	10.19	60000
1	100263	1	60000	2.15	60000
1	100268	1	60000	10.19	60000
1	100263	1	60000	2.15	60000
1	100263	1	60000	2.15	60000
1	100268	1	60000	10.19	60000
1	100263	1	60000	2.15	60000
1	100263	1	60000	2.15	60000
1	100268	1	60000	10.19	60000
1	100263	1	60000	2.15	60000

1293

FIG. 12N2

1294A	1294B	1294C	1294D
DC_SET_ID	DC_SET_NAME	DC_SET_FRAME	DC_LASTUPDATE
100259	Santana	left	9.86999E+11
100260	Shania	left	9.86999E+11
100261	Hertz	right	9.87003E+11
100262	Budweiser	right	9.87003E+11
100263	Nextel_15second_A	bottom	9.87004E+11
100264	Nextel_15second_B	bottom	9.87004E+11
100265	Nextel_15second_B	bottom	9.87004E+11
100266	Nextel_30second	bottom	9.87004E+11
100267	Dunkin_30second_A	bottom	9.87005E+11
100268	Dunkin_15second	bottom	9.87005E+11
100269	Dunkin_30second_A	bottom	9.87006E+11
100270	Dunkin_30second_B	bottom	9.87006E+11
100271	DiscountFurnitureDirect	right	9.87006E+11
100272	Sleepers	right	9.87006E+11
100223	Nextel Data Traffic		9.86746E+11
100224	Nextel Morning Drive		9.86751E+11
100225	Nextel By Time		9.86751E+11
100273	Big_Als	right	9.87006E+11
100274	Sunrise	right	9.87006E+11
100275	Zieglers	right	9.87006E+11
100276	BMW	right	9.87006E+11
100230	Ichi-Bahn PAD Morning Drive		9.86752E+11
100277	BMW_second	bottom	9.87006E+11
100278	BMW	right	9.87006E+11
100279	Hertz	right	9.87006E+11
100280	Hertz_second	bottom	9.87006E+11
100281	Hertz_second	bottom	9.87006E+11
100297	Budweiser	right	9.87273E+11
100298	DiscountFurnitureDirect	right	9.87273E+11

1294

FIG. 120

1295A	1295B	1295C	1295D	1295E
DIGITALCOPY_ID	DIGITALCOPY_ID_TAG	DIGITALCOPY_MIN_LENGTH	DIGITALCOPY_OPT_LENGTH	DIGITALCOPY_ACTION_CODE
100754	Gray-fact2	0	10000	
100755	Gray-fact3	0	10000	
100756	Knopfler-open	0	15000	
100757	Knopfler-fact1	0	10000	
100758	Knopfler-fact2	0	10000	
100759	Knopfler-fact3	0	10000	
100760	Santana-open	0	15000	
100761	Santana-fact1	0	10000	
100762	Santana-fact2	0	10000	
100763	Santana-fact3	0	10000	
100764	Shania-open	0	15000	
100765	Shania-fact1	0	10000	
100766	Shania-fact2	0	10000	
100767	Shania-fact3	0	10000	
100768	Hertz-opening	0	2500	
100769	Hertz-special1	0	1000	
100770	Hertz-special2	0	1000	
100771	Hertz-special3	0	1000	
100772	Hertz-special4	0	1000	
100773	Hertz-closing1	0	1500	
100774	Hertz-closing2	0	1000	
100775	Hertz-closing3	0	6000	
100776	Bud-open	0	5000	
100777	Bud-copy1	0	7500	

1295

FIG. 12P1

1295A		1295B		1295C		1295D		1295E
DIGITALCOPY_ID	DIGITALCOPY_ID_TAG	DIGITALCOPY_MIN_LENGTH	DIGITALCOPY_OPT_LENGTH	DIGITALCOPY_ACTION_CODE				
100778	Bud-copy2	0	7500					
100779	Bud-copy3	0	7500					
100780	Bud-close	0	2500					
100781	Nextel-open	0	5000					
100782	Nextel-body1	0	3000					
100783	Nextel-body2	0	3000					
100784	Nextel-body3	0	3000					
100785	Nextel-close	0	1000					

1295

FIG. 12P2

1296A	1296B	1296C	1296D
DC_SET_DETAILS_ID	DC_SET_ID	DC_SET_DETAILS_SEQ	DIGITALCOPY_ID
985	100257	3	100754
986	100257	4	100755
987	100258	1	100756
988	100258	2	100757
989	100258	3	100758
990	100258	4	100759
991	100259	1	100760
992	100259	2	100761
993	100259	3	100762
994	100259	4	100763
995	100260	1	100764
996	100260	2	100765
997	100260	3	100766
998	100260	4	100767
999	100261	1	100768
1000	100261	2	100769
1001	100261	3	100770
1002	100261	4	100771
1003	100261	5	100772

1296

FIG. 12Q

1298A	1298B	1298C	1298D
DC_DISPLAY_ID	DIGITALCOPY_ID	DISPLAY_TYPE	CDDATA
10001	754	text/html	<html>...</html>
10002	755	text/html	<html>...</html>
10003	756	text/html	<html>...</html>

1298

FIG. 12R

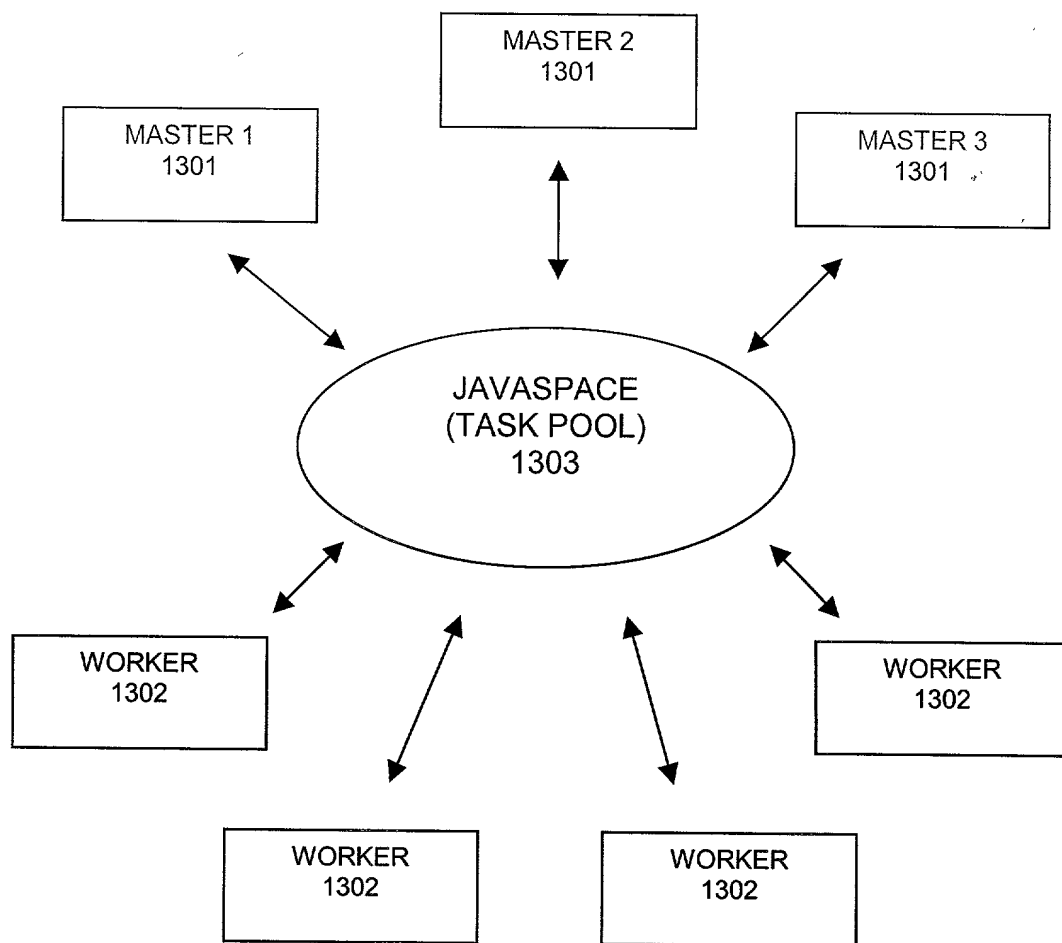


FIG. 13A

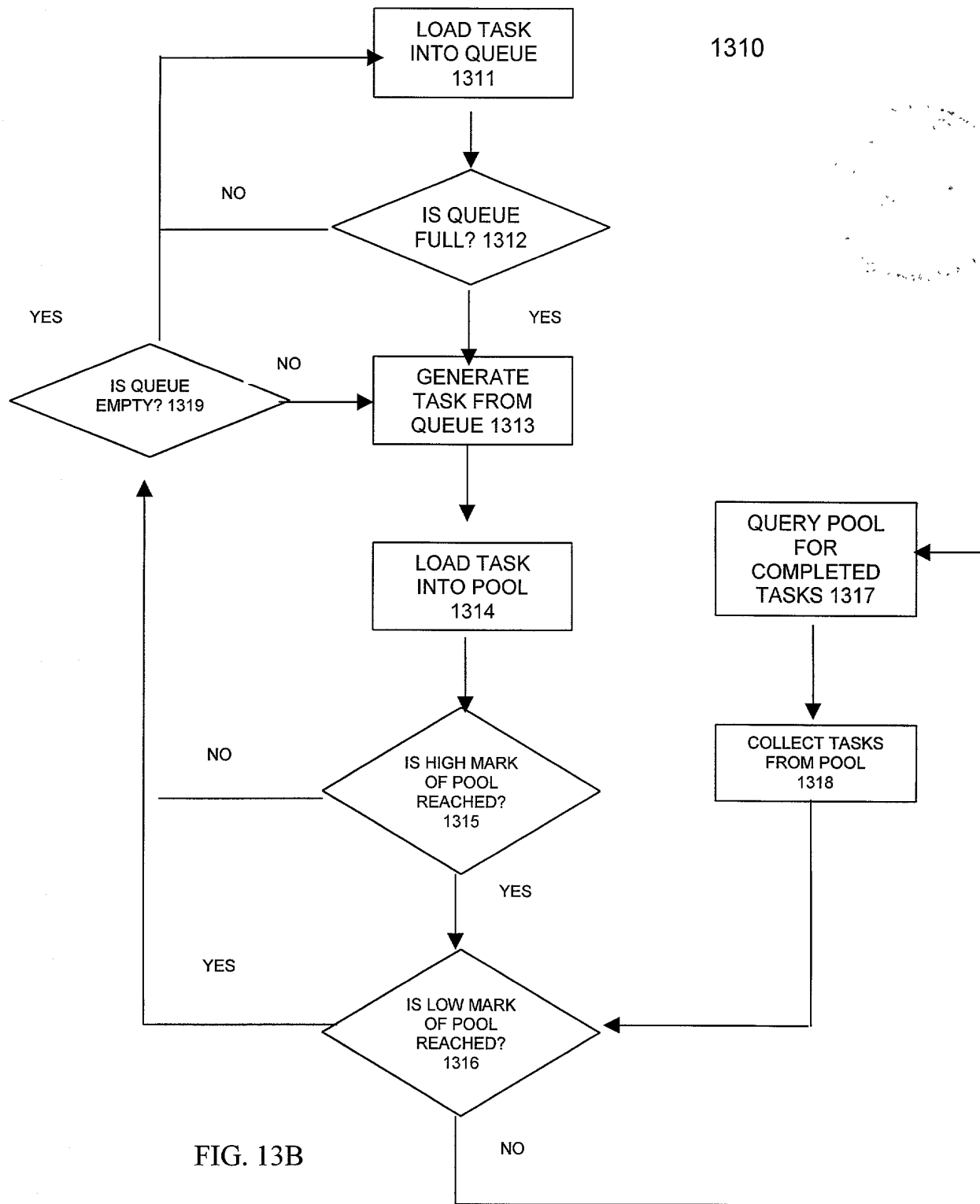
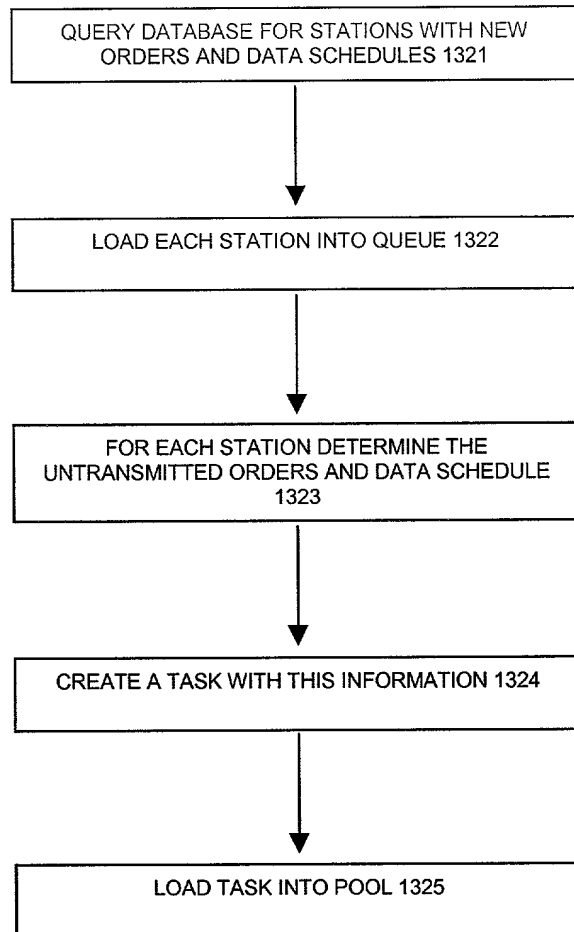
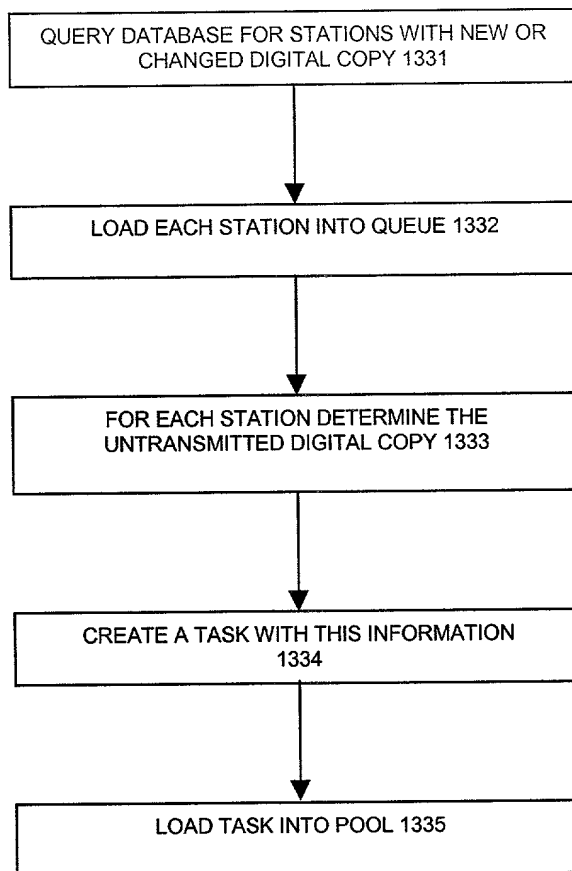


FIG. 13B



1320

FIG. 13C



1330

FIG. 13D

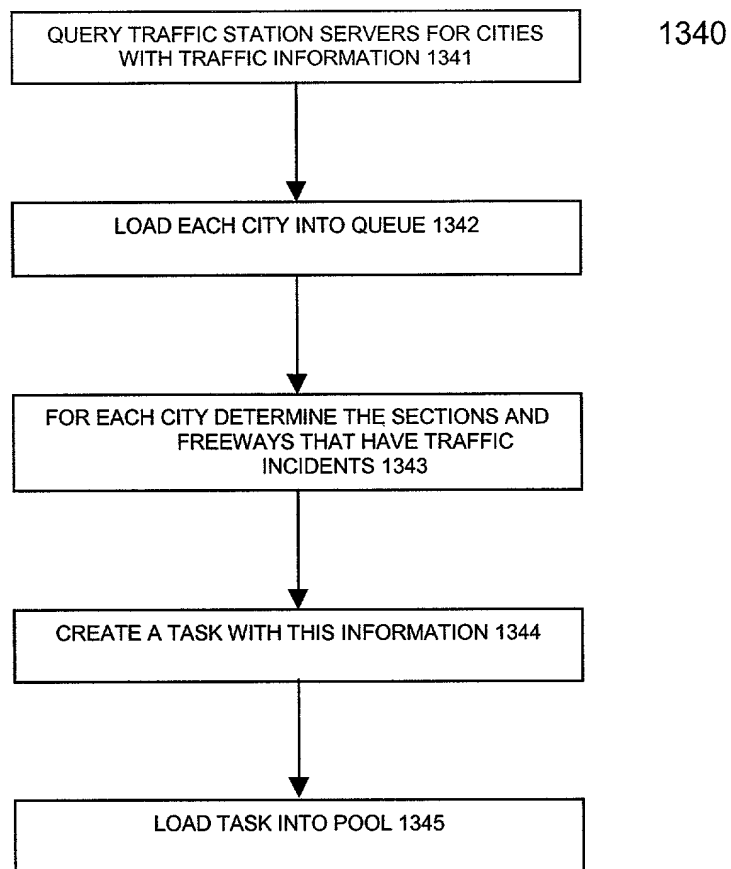


FIG. 13E

Patent Application No. 10/200,000

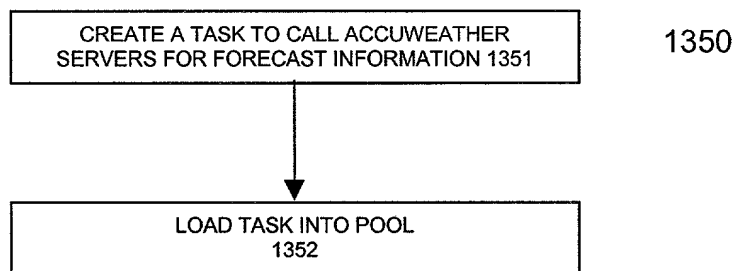


FIG. 13F

1360

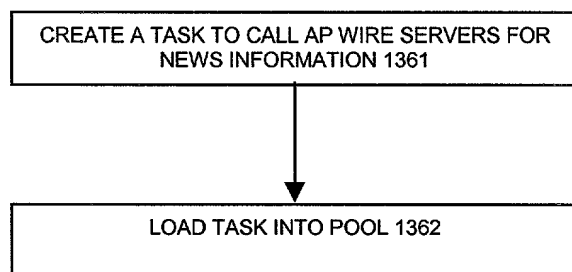


FIG. 13G

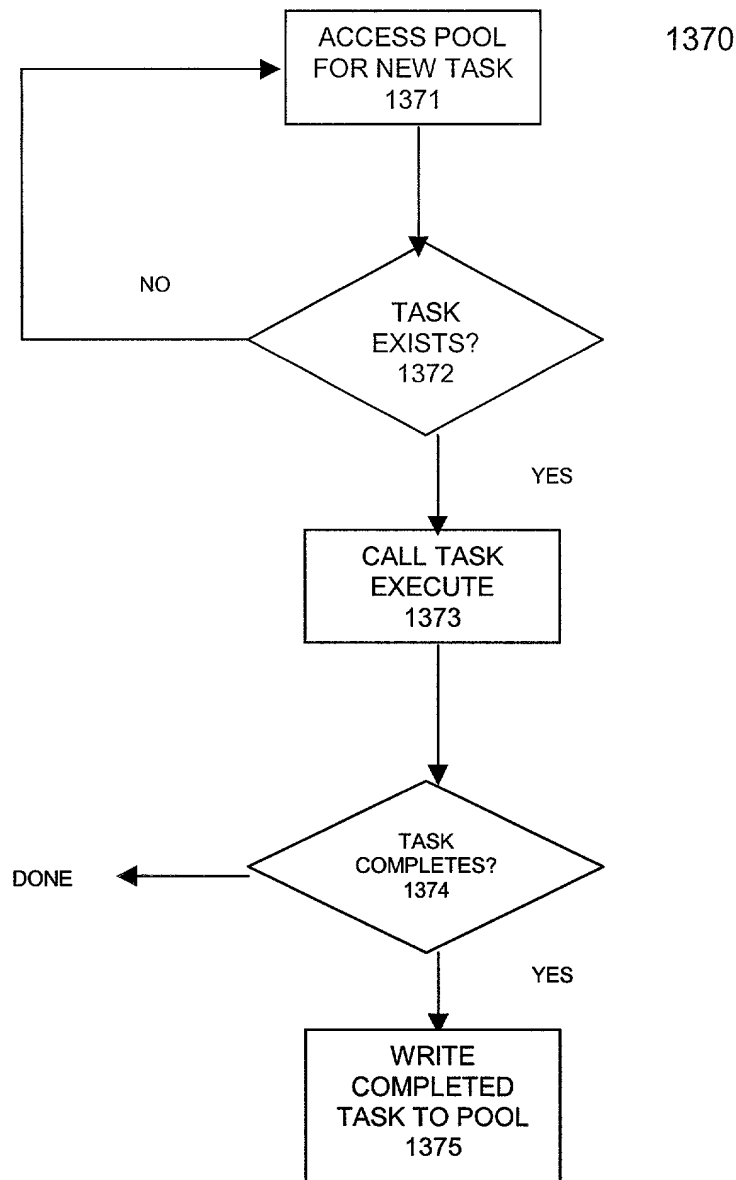


FIG. 13H

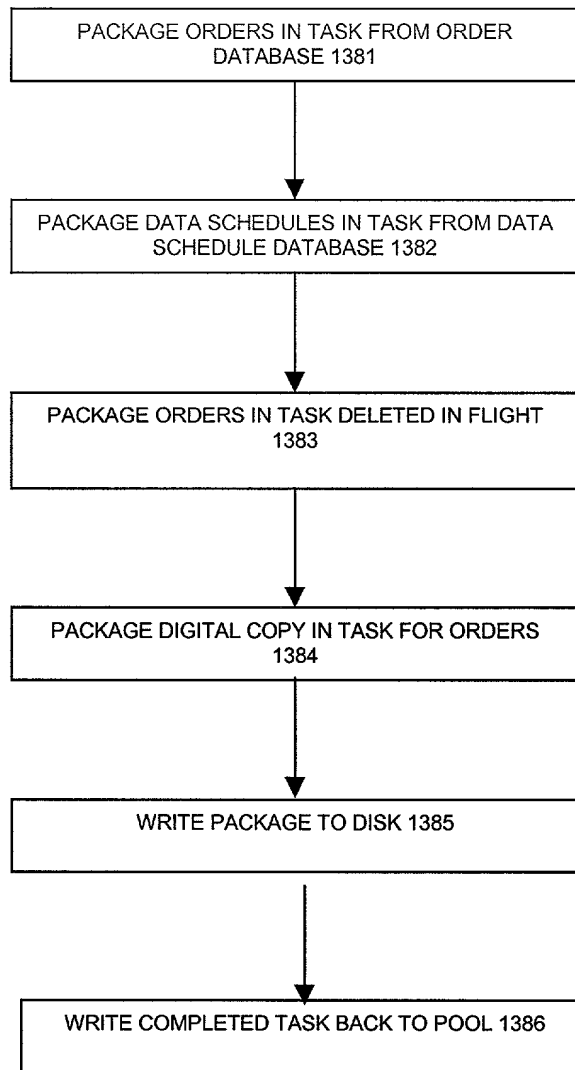


FIG. 13I

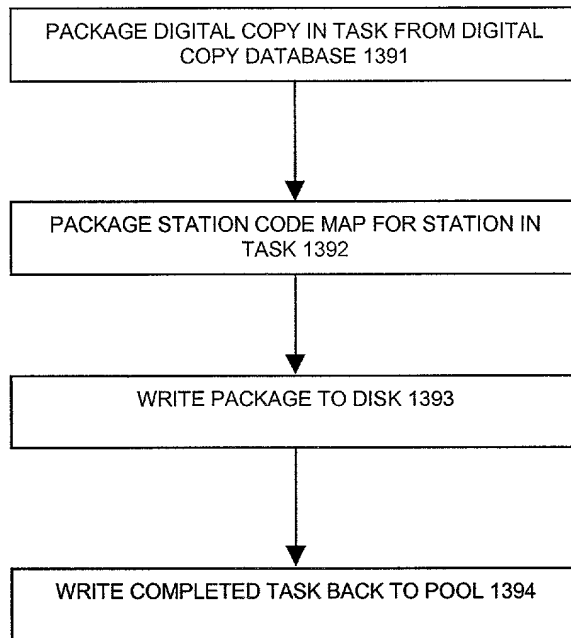


FIG. 13J

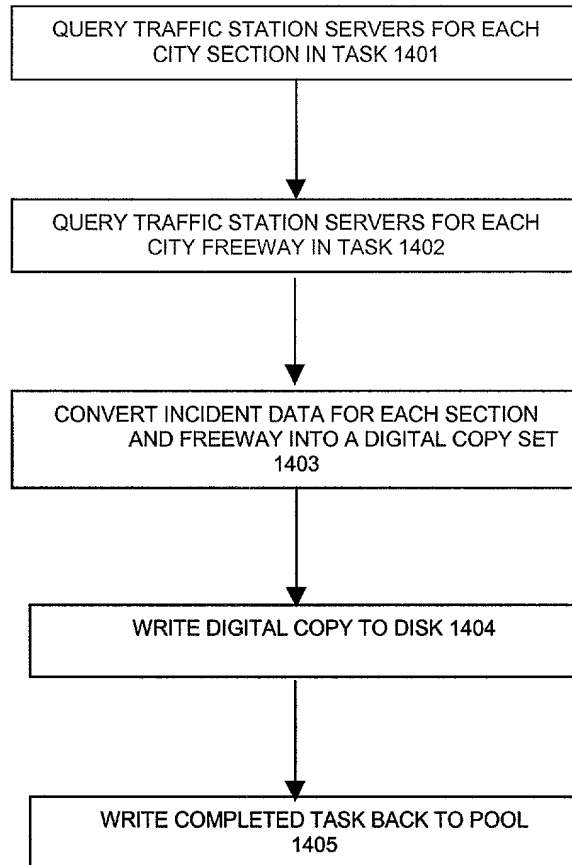


FIG. 13K

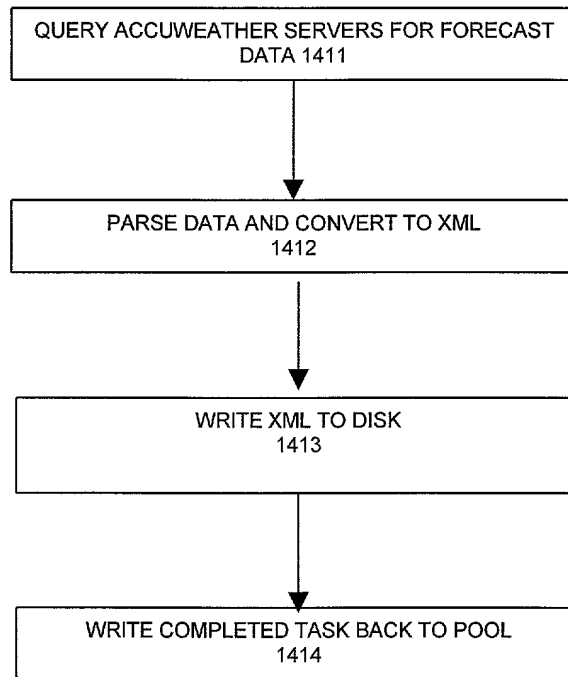


FIG. 13L

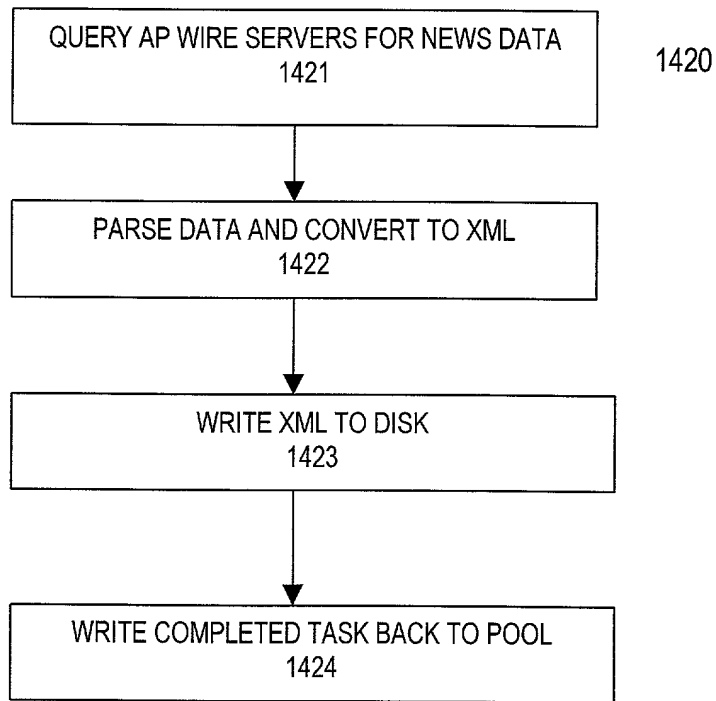


FIG. 13M

<!ELEMENT DataPackage (SchemaDef | data) >
<!ATTLIST DataPackage index NMToken #IMPLIED>

1425

<!ELEMENT SchemaDef (table | layout) #REQUIRED >

<!ELEMENT table (#PCDATA) #REQUIRED >

<!ELEMENT layout (#PCDATA) #REQUIRED >

<!ELEMENT data (#PCDATA) #REQUIRED >

<!ATTLIST data bytesize NMToken #IMPLIED>

FIG. 13N

FIG. 13N

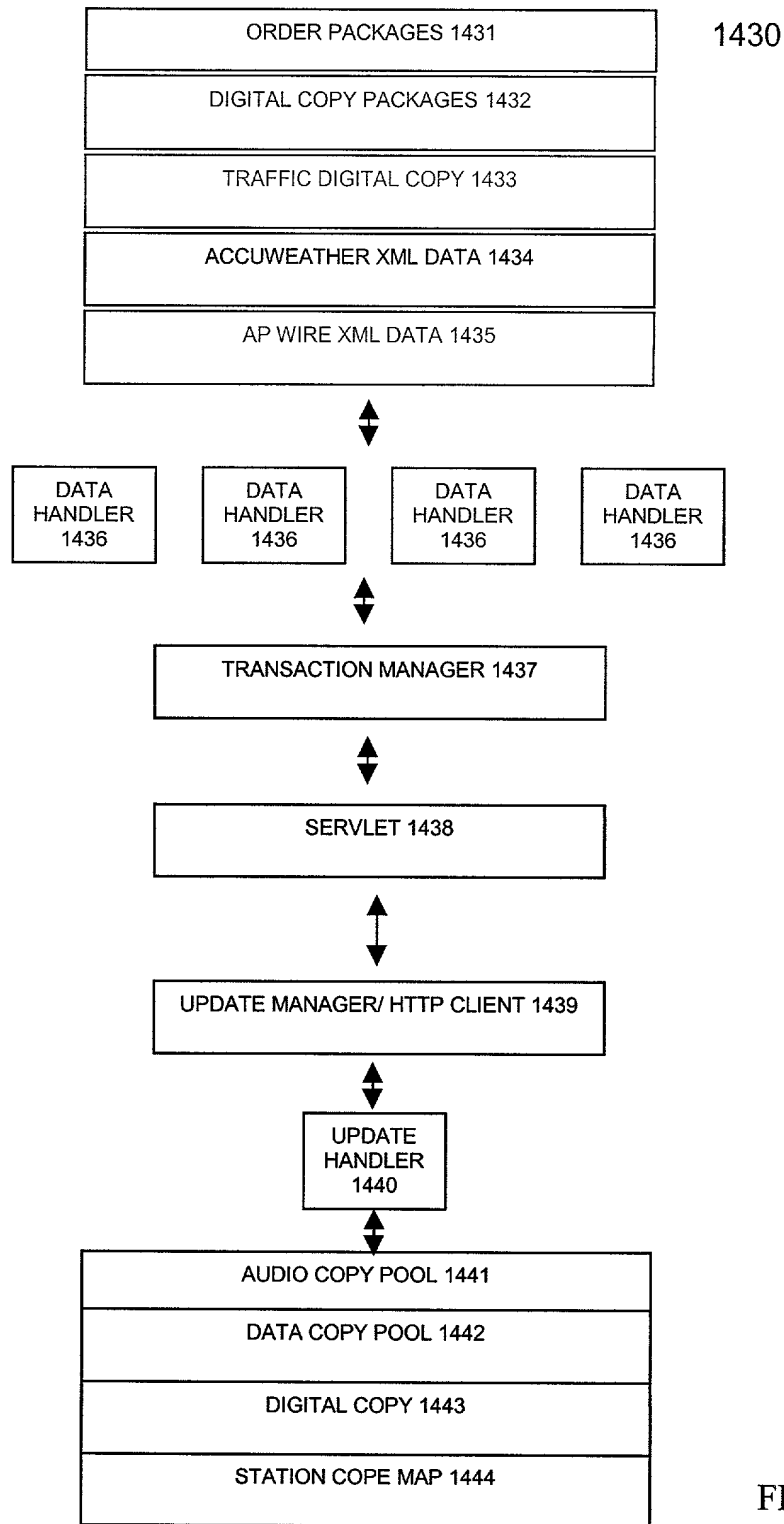


FIG. 14A

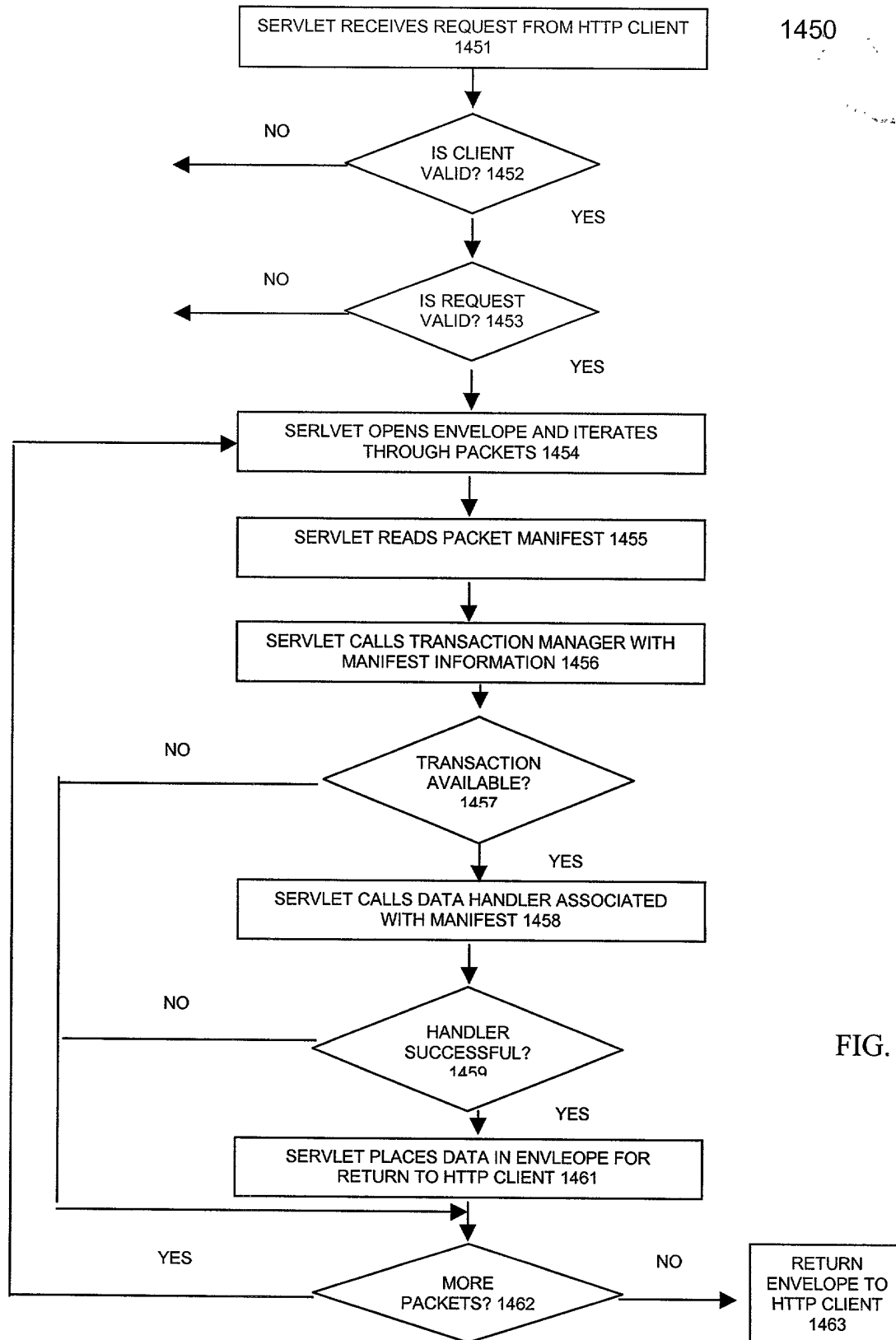


FIG. 14B

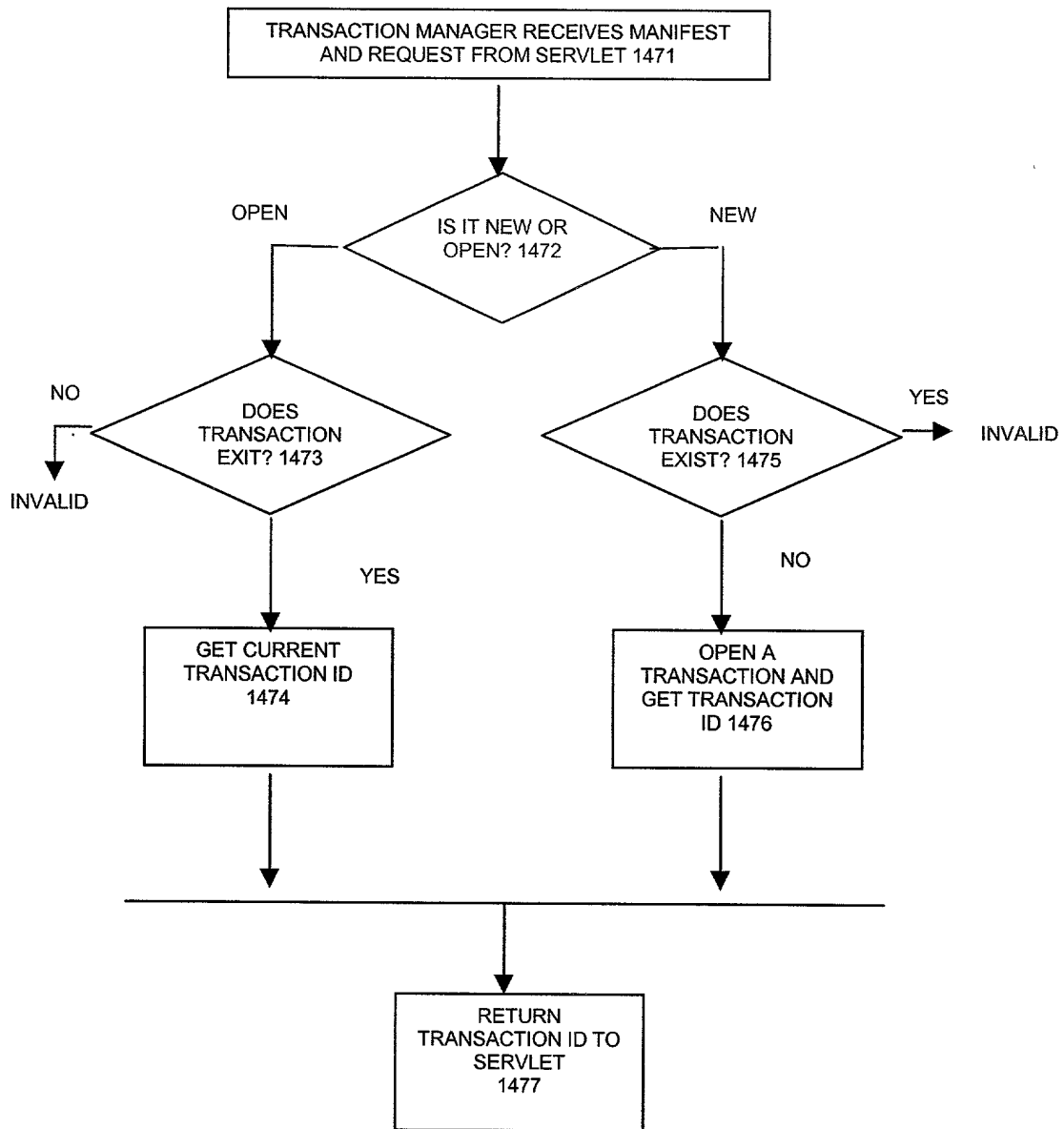


FIG. 14C

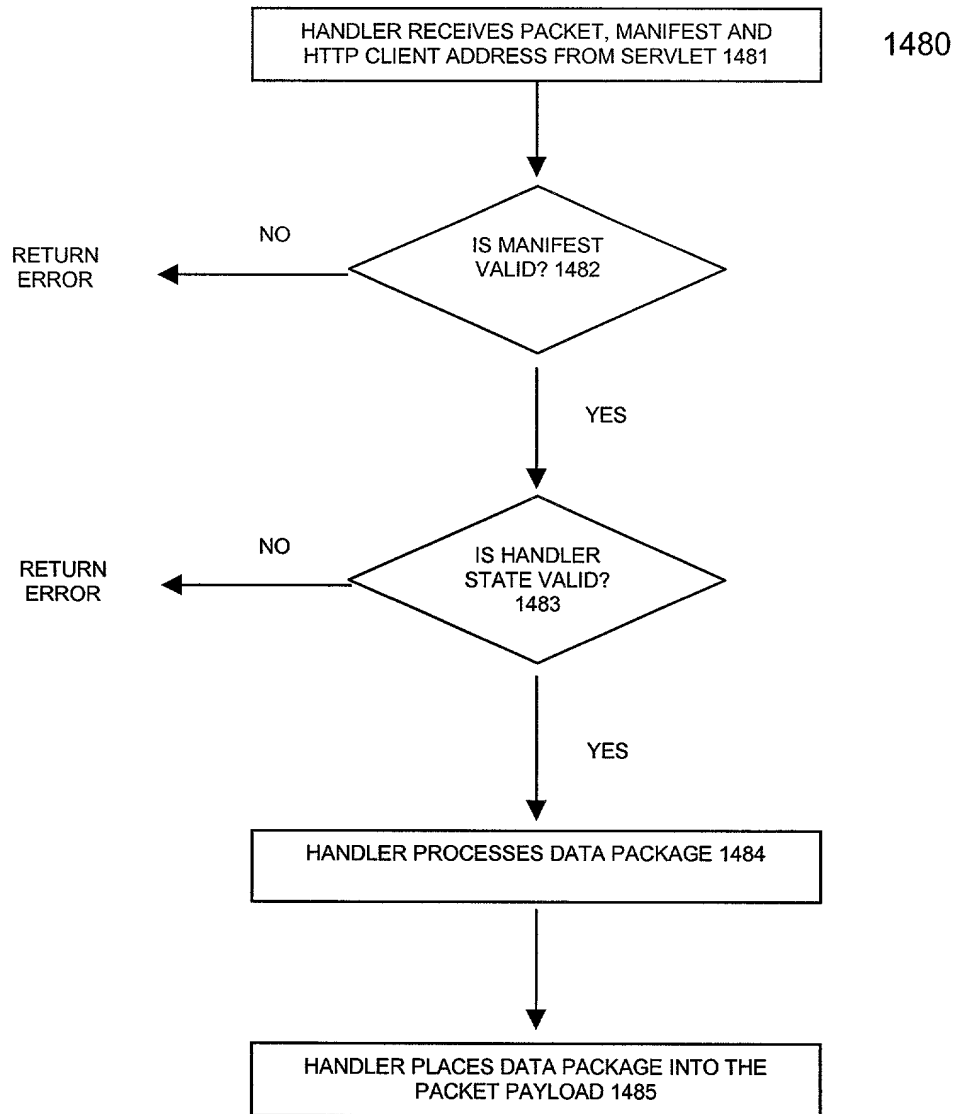


FIG. 14D

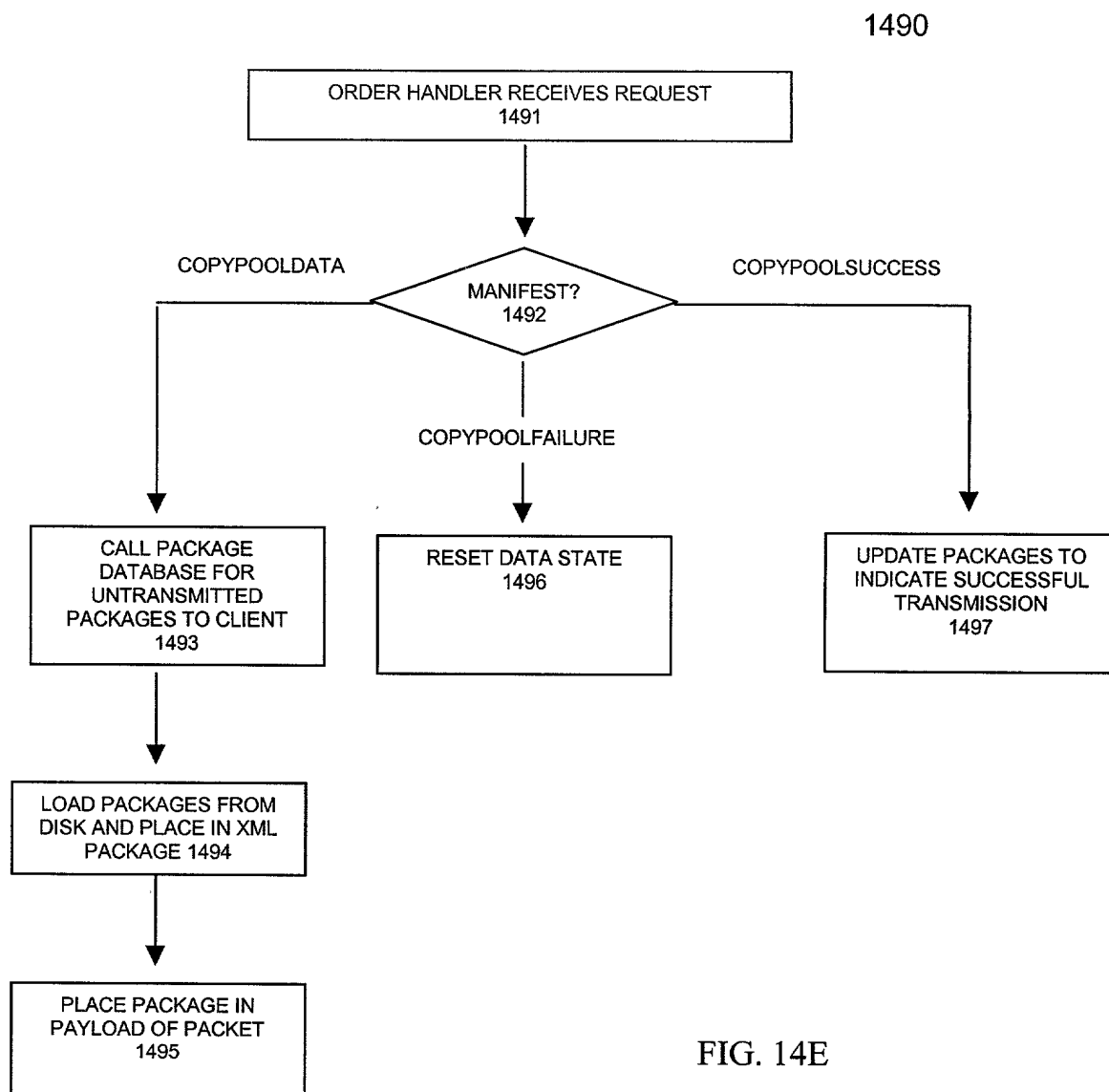


FIG. 14E

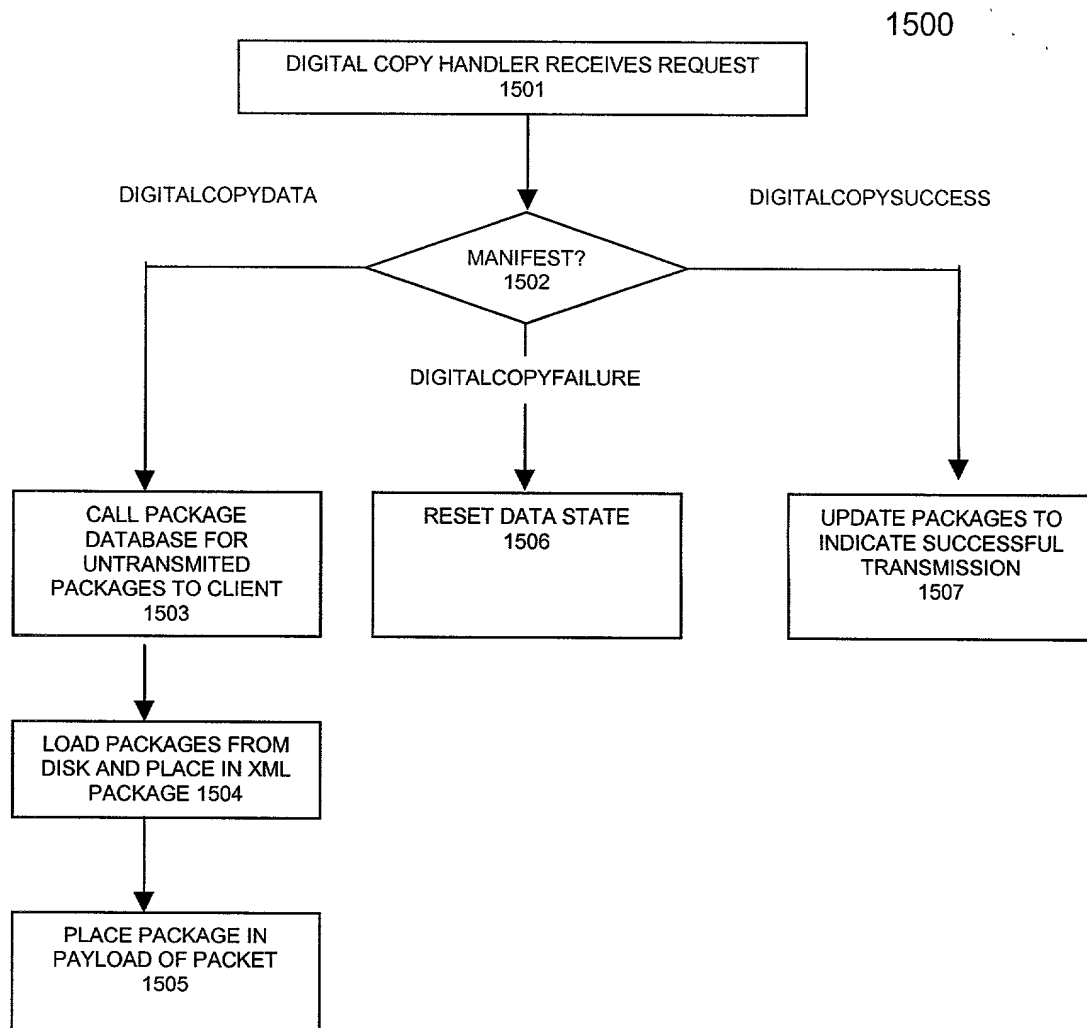
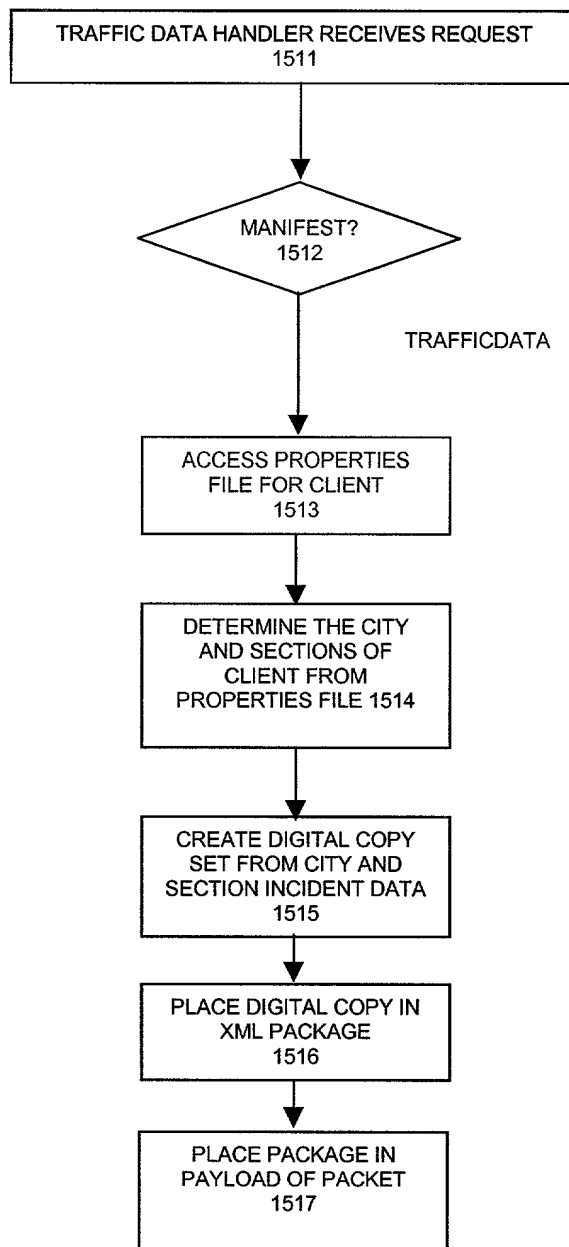
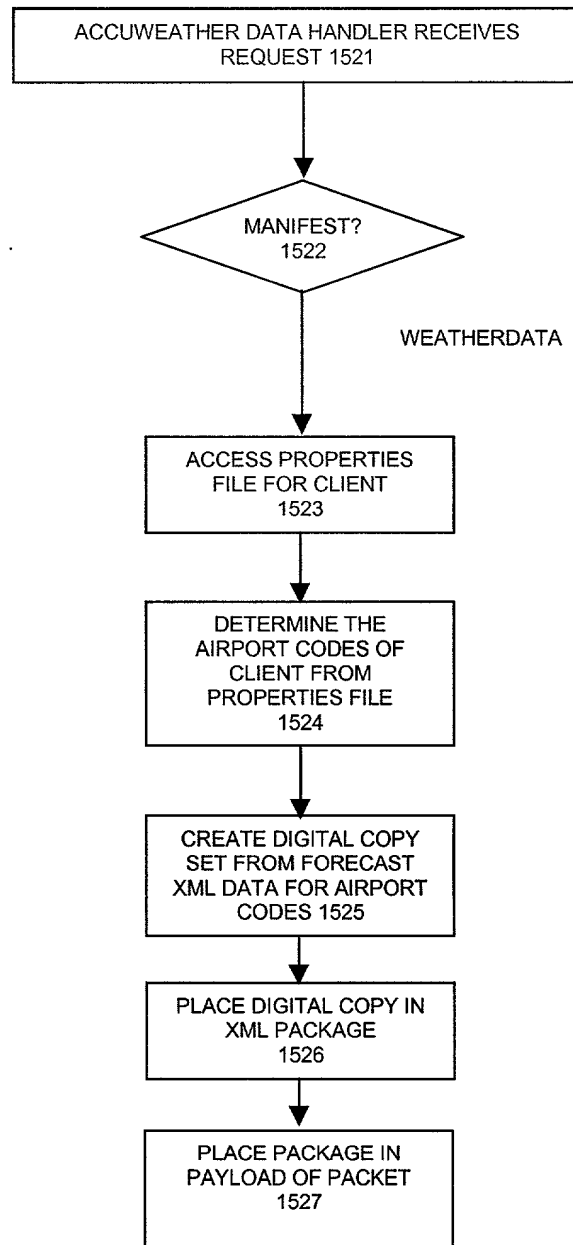


FIG. 14F



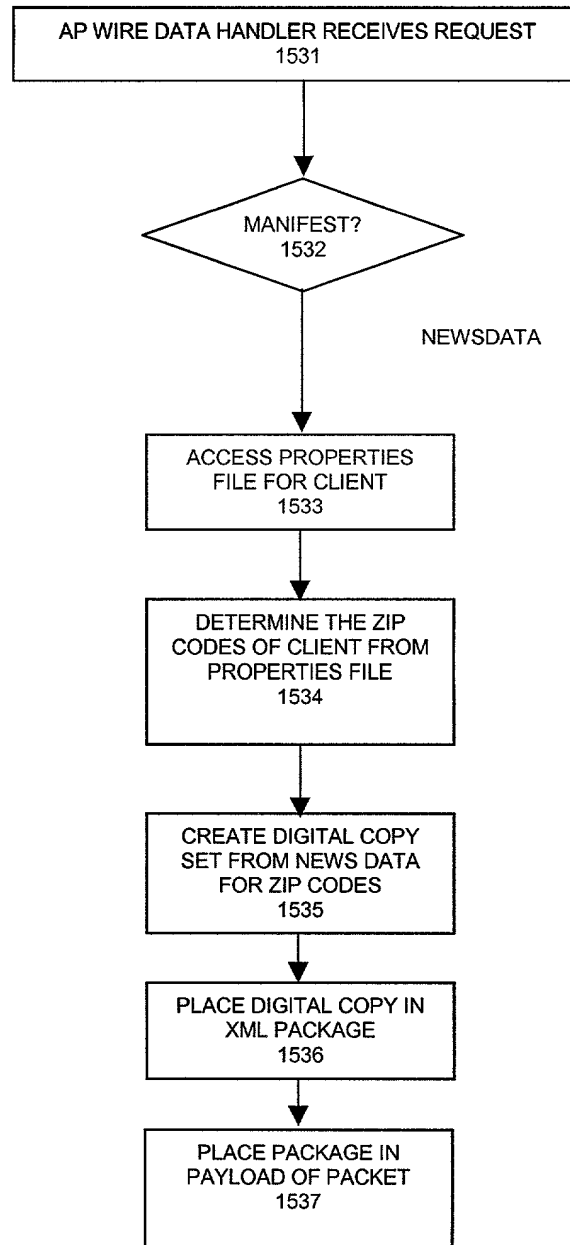
1510

FIG. 14G



1520

FIG. 14H



1530

FIG. 14I

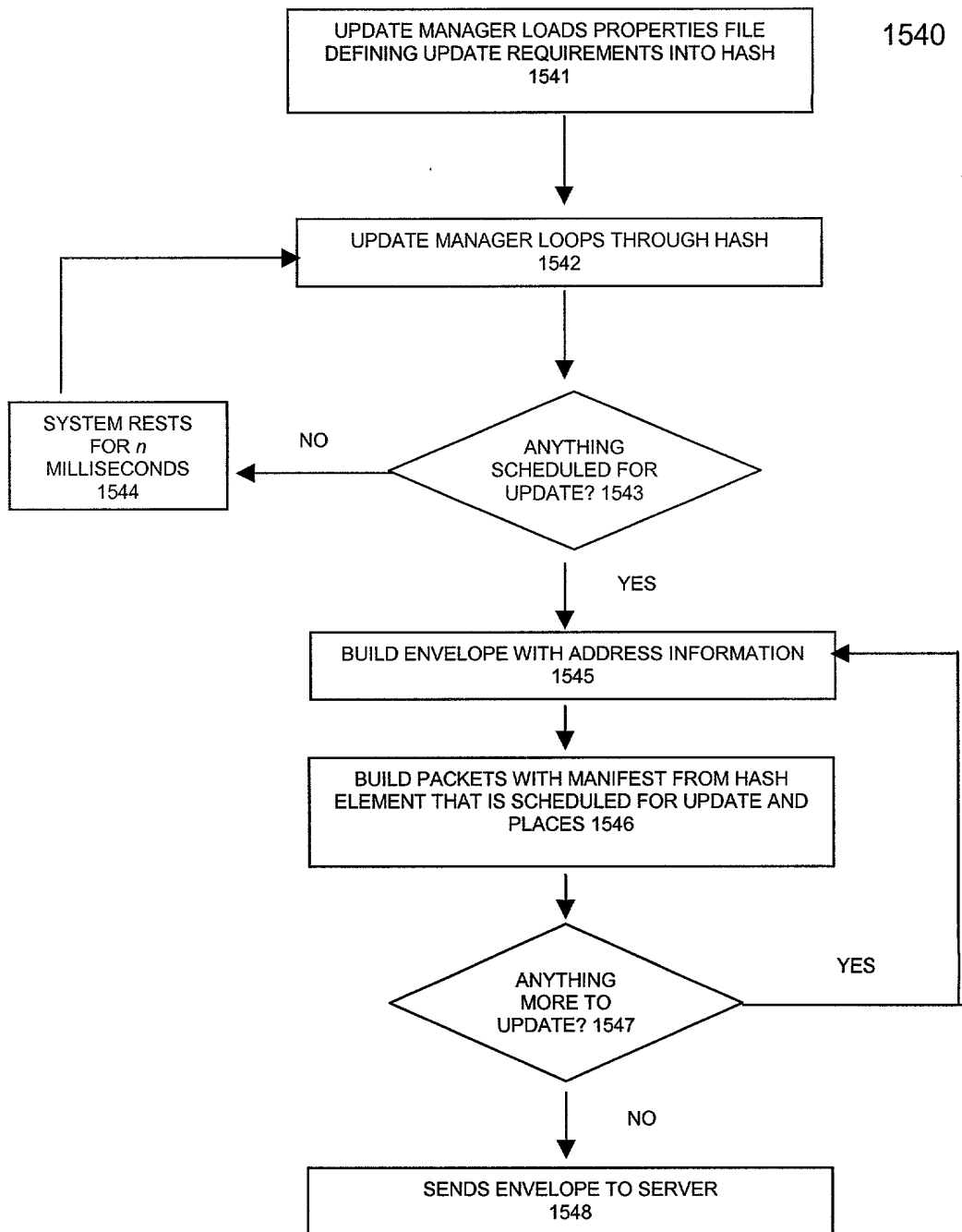


FIG. 14J

1550

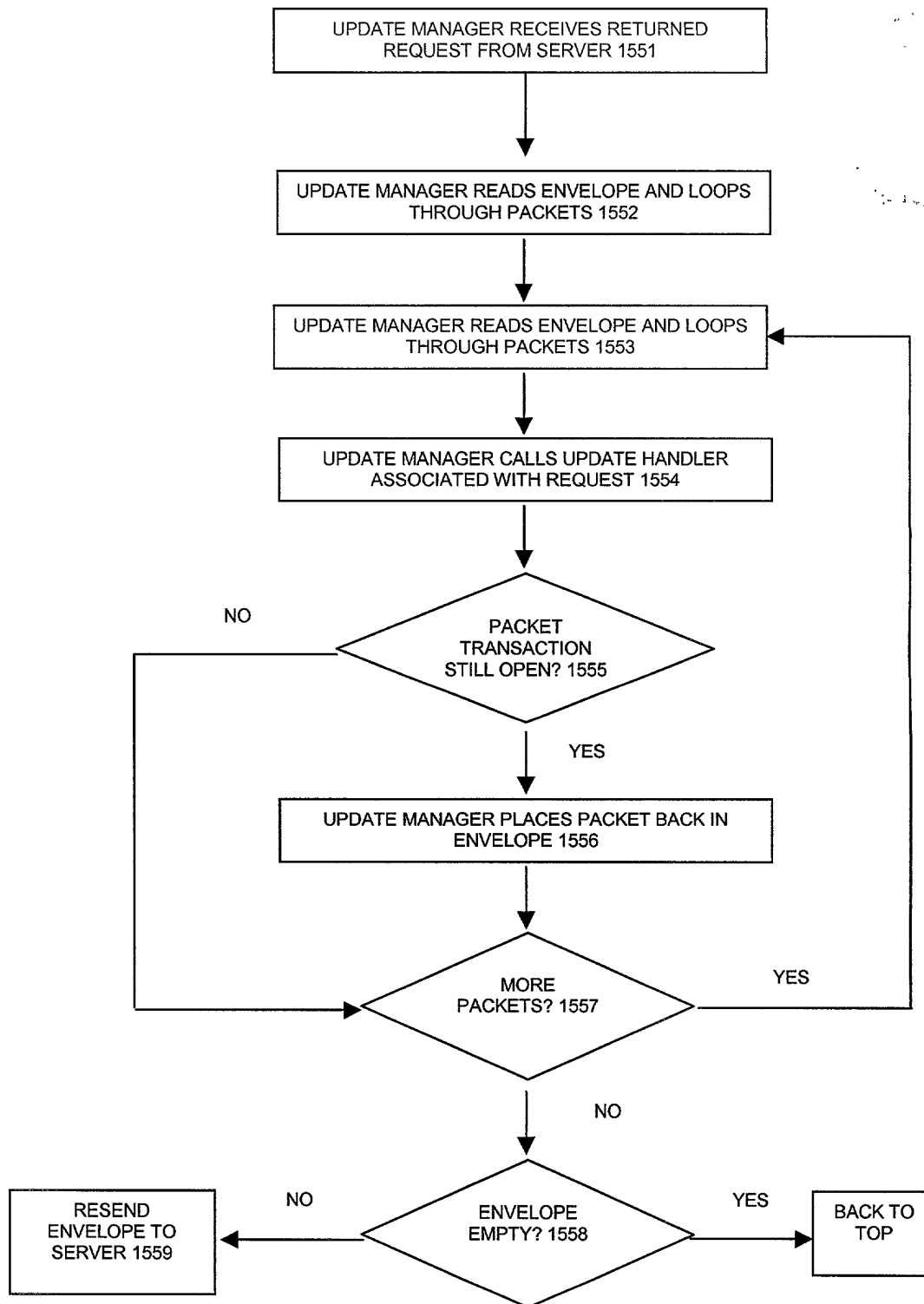


FIG. 14J1

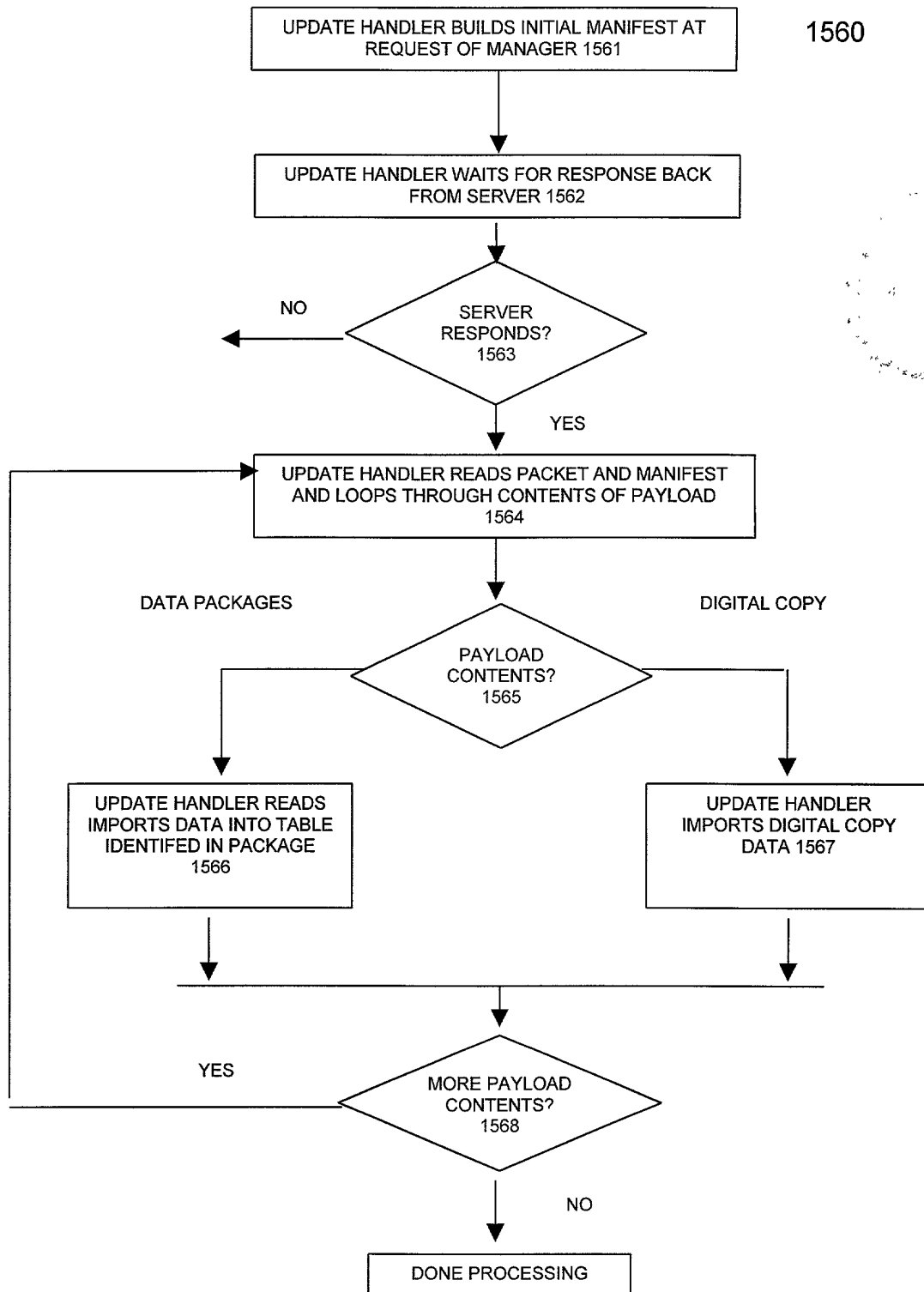


FIG. 14K

<!ELEMENT Envelope (AddressInfo | Packet*) >

1570

<!ELEMENT AddressInfo (Sender | credential | recipient) #REQUIRED >

<!ELEMENT Sender (#PCDATA) #REQUIRED >

<!ELEMENT credential (#PCDATA) #REQUIRED >

<!ELEMENT recipient (#PCDATA) #REQUIRED >

<!ELEMENT Packet (PacketInfo | payload) #REQUIRED >

<!ELEMENT PacketInfo (packetTransID | manifest | type) #REQUIRED >

<!ELEMENT packetTransID (#PCDATA) #REQUIRED >

<!ELEMENT manifest (#PCDATA) #REQUIRED >

<!ELEMENT type (#PCDATA) #REQUIRED >

<!ELEMENT payload (#PCDATA) #REQUIRED >

FIG. 14L

<?xml version="1.0" encoding="UTF-8"?>

1571

<Envelope>

<AddressInfo>

<Sender>2</Sender>

<credential>qazxsw23edcvfr45tgbnhy67ujmki890ed21</credential>

<Recipient>192.168.0.1/servlets/BBserver</Recipient>

</AddressInfo>

<Packet>

<PacketInfo>

<packetTransID>985971169074</packetTransID>

<manifest>DIGITALCOPYPACKAGE</manifest>

<type>1</type>

</PacketInfo>

<payload><?xml

version="1.0"

encoding="UTF-8"?>

<Request>DIGITALCOPYPACKAGE</Request>

</payload>

</Packet>

</Envelope>

FIG. 14M

FIG. 15A

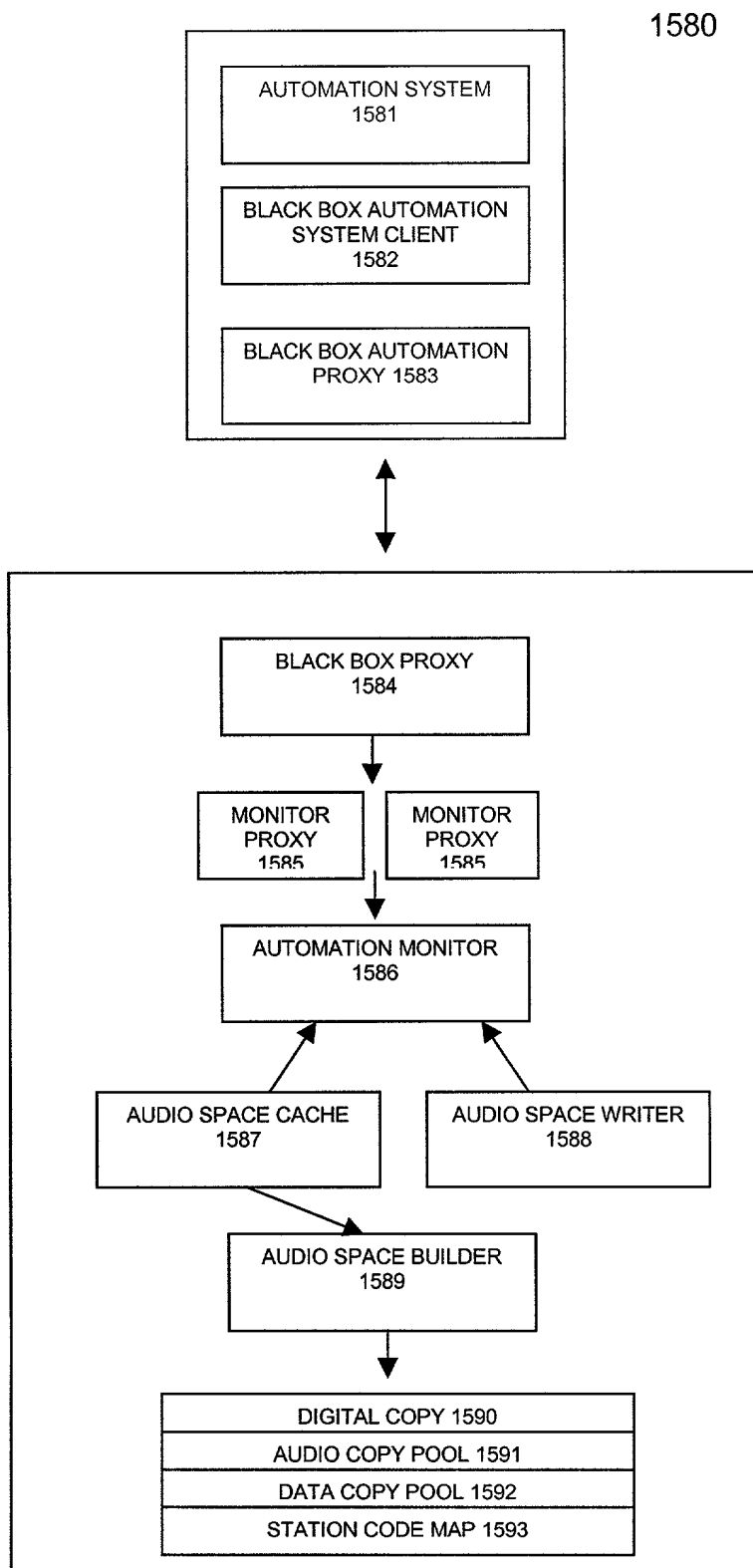


FIG. 15A

1600

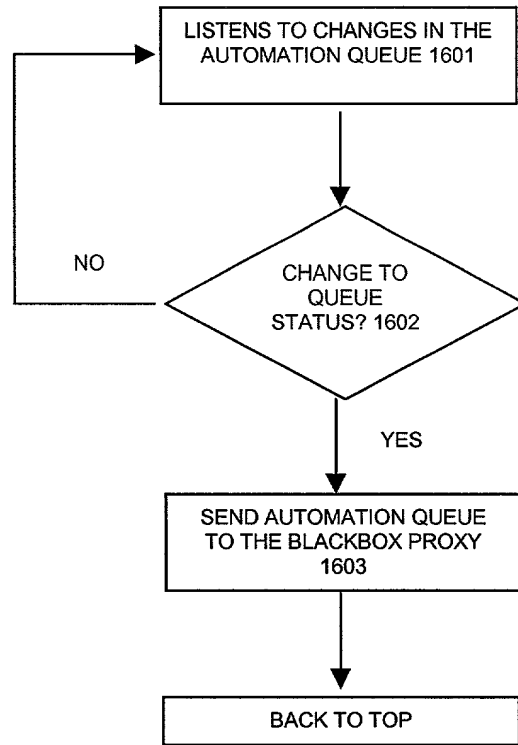
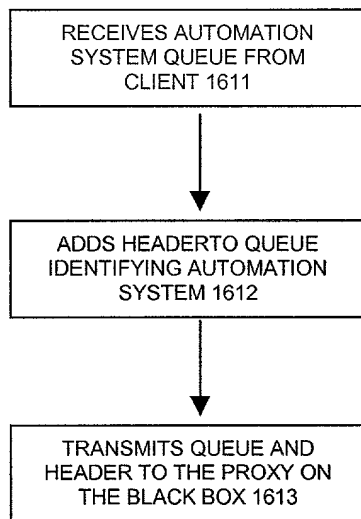
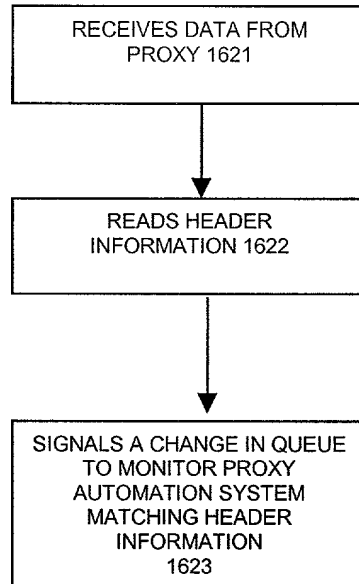


FIG. 15B



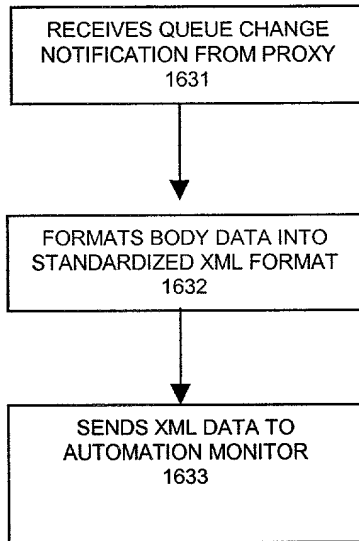
1610

FIG. 15C



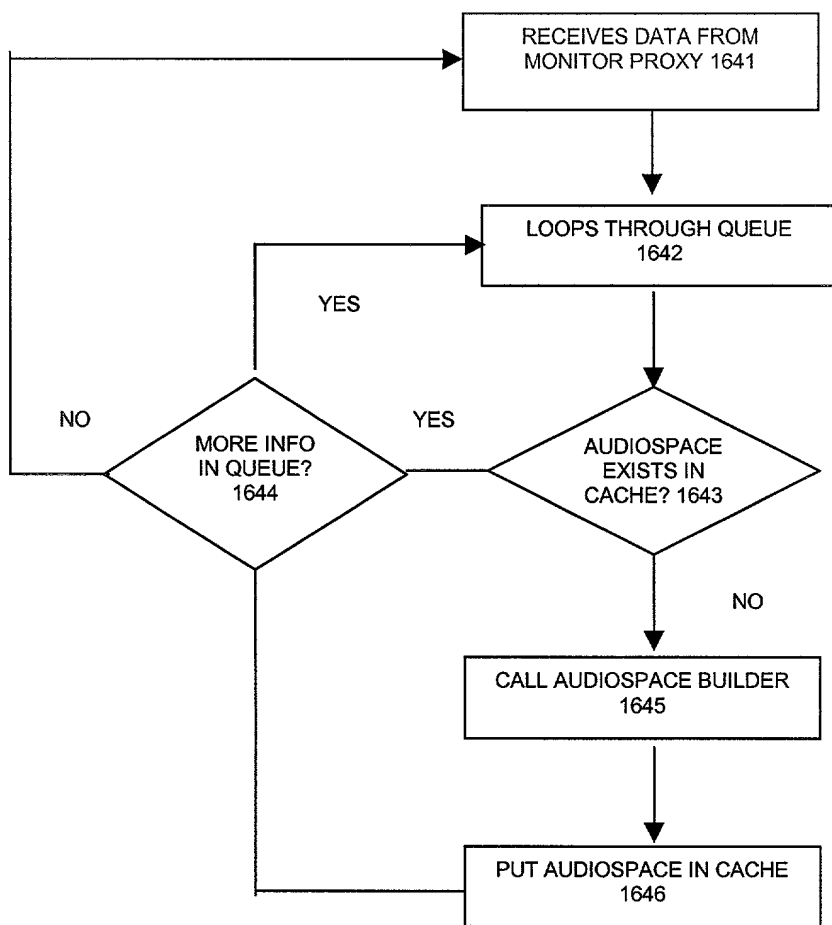
1620

FIG. 15D



1630

FIG. 15E



1640

FIG. 15F

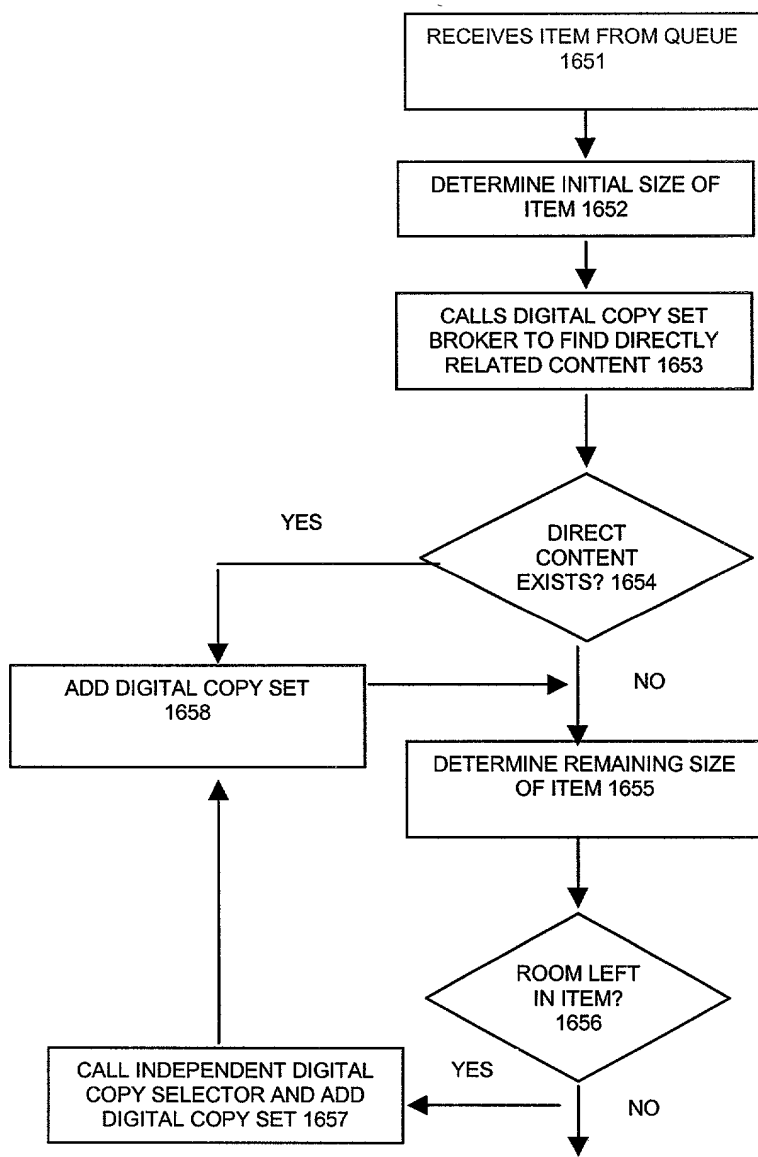


FIG. 15G

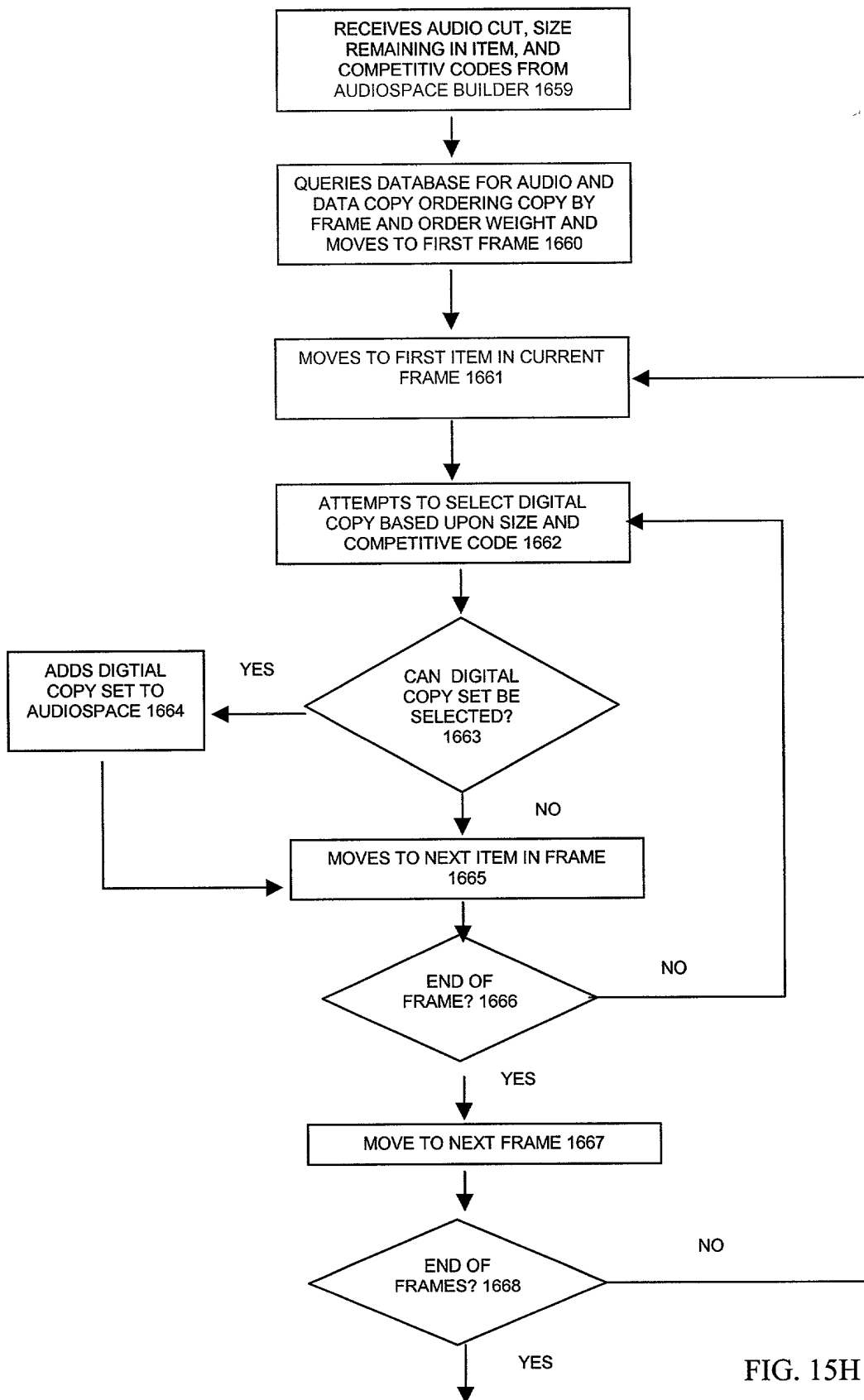


FIG. 15H

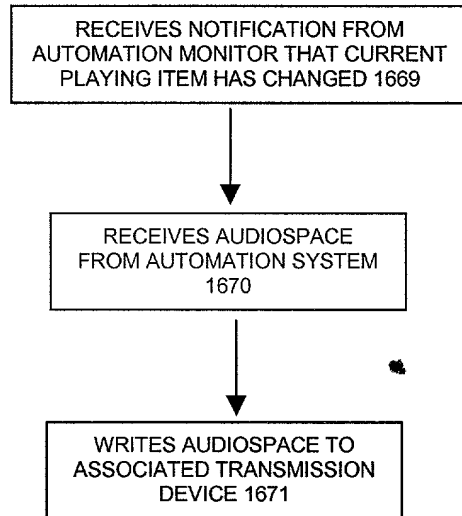


FIG. 15I

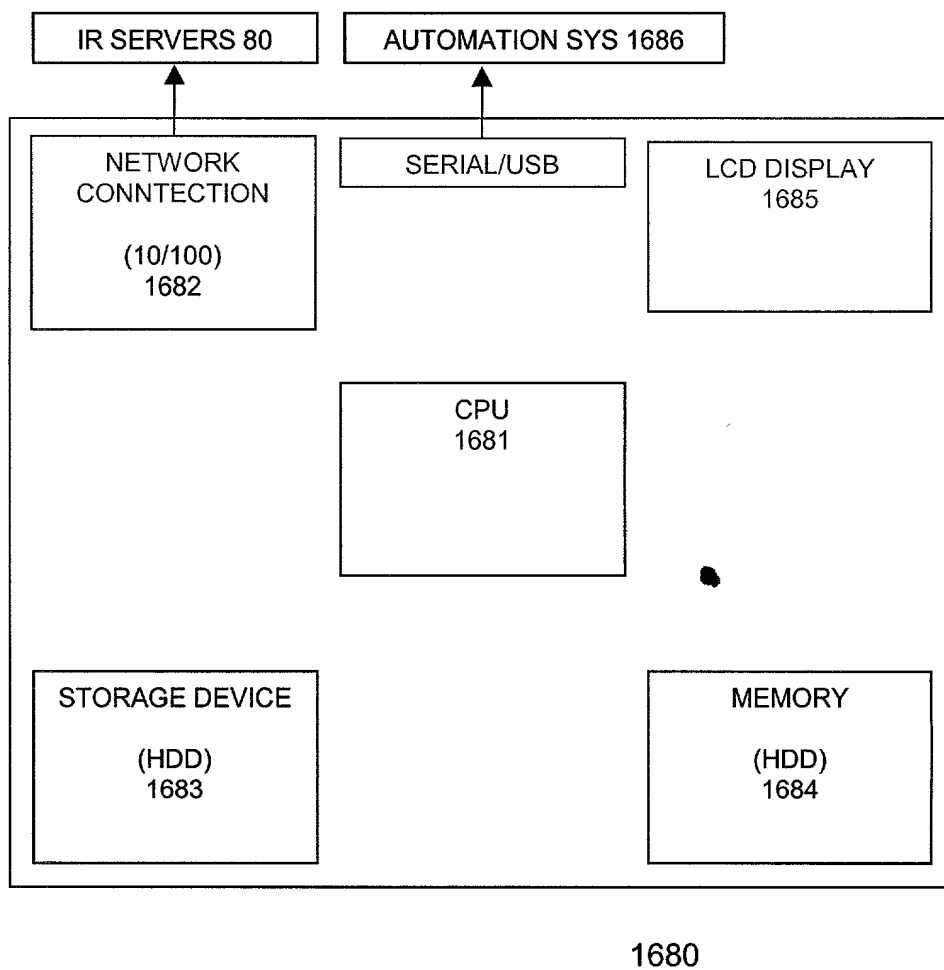


FIG. 15J

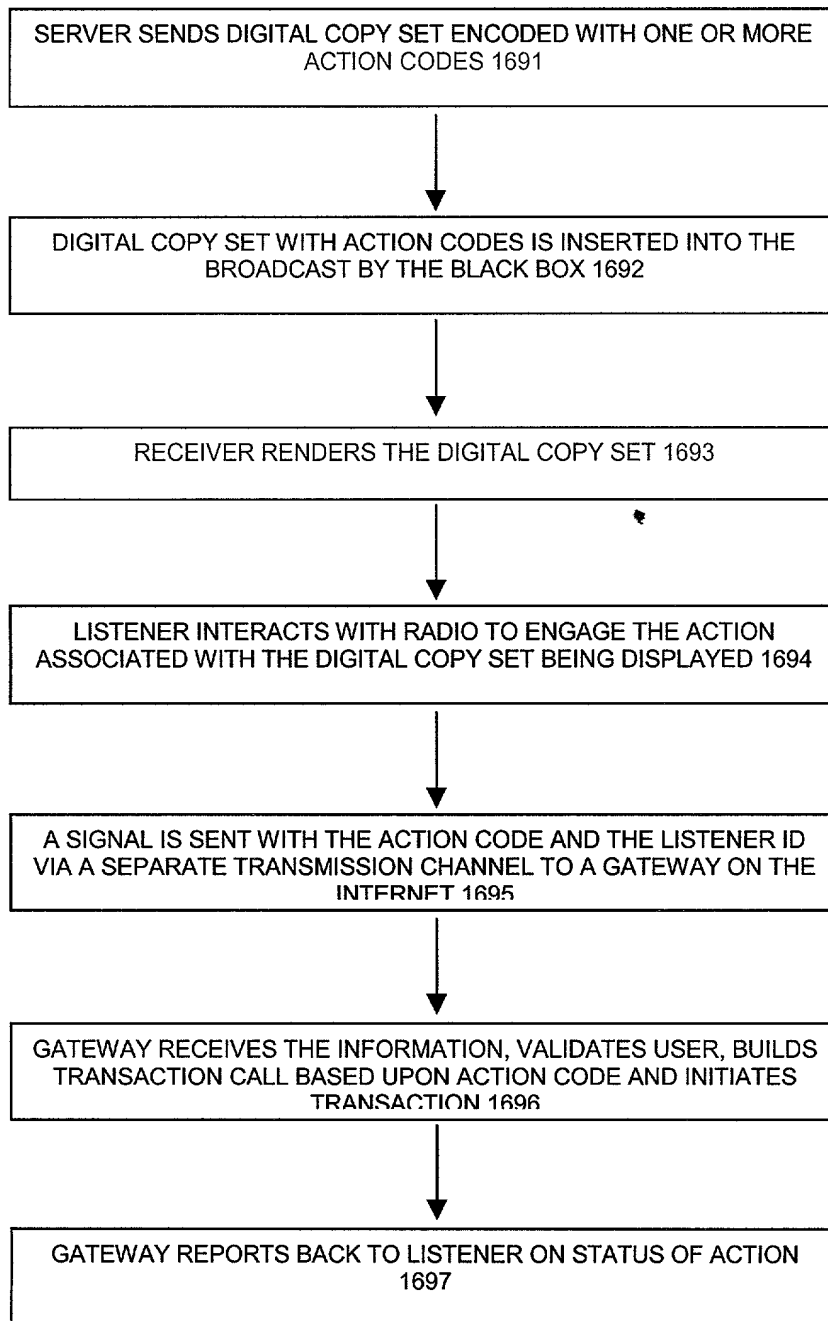
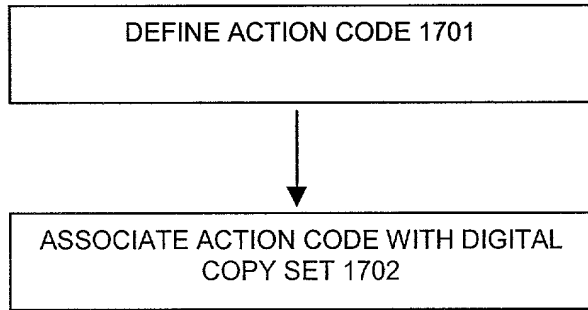


FIG. 16A



1700

FIG. 16B

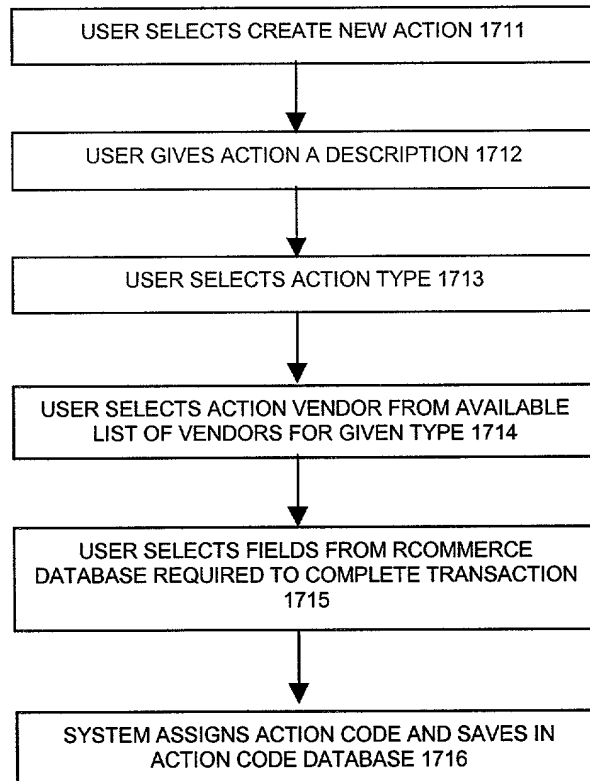
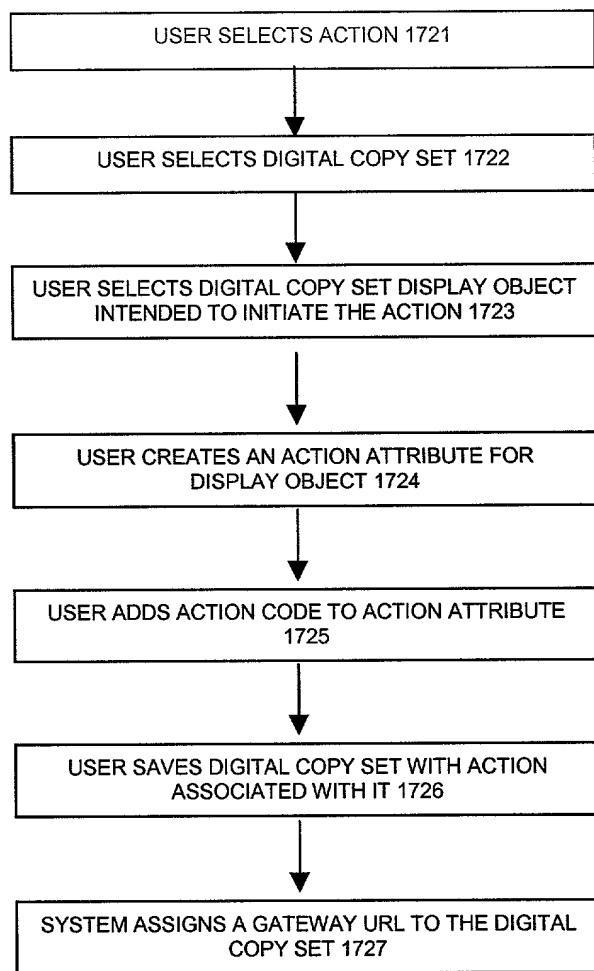


FIG. 16C



1720

FIG. 16D

RECEIVER RENDERS DIGITAL COPY SET
1731

1730

USER INITIATES ACTION VIA A BUTTON PRESS OF
VERBAL COMMAND
1732

YES

NO

PIN
REQUIRED?
1733

NO

YES

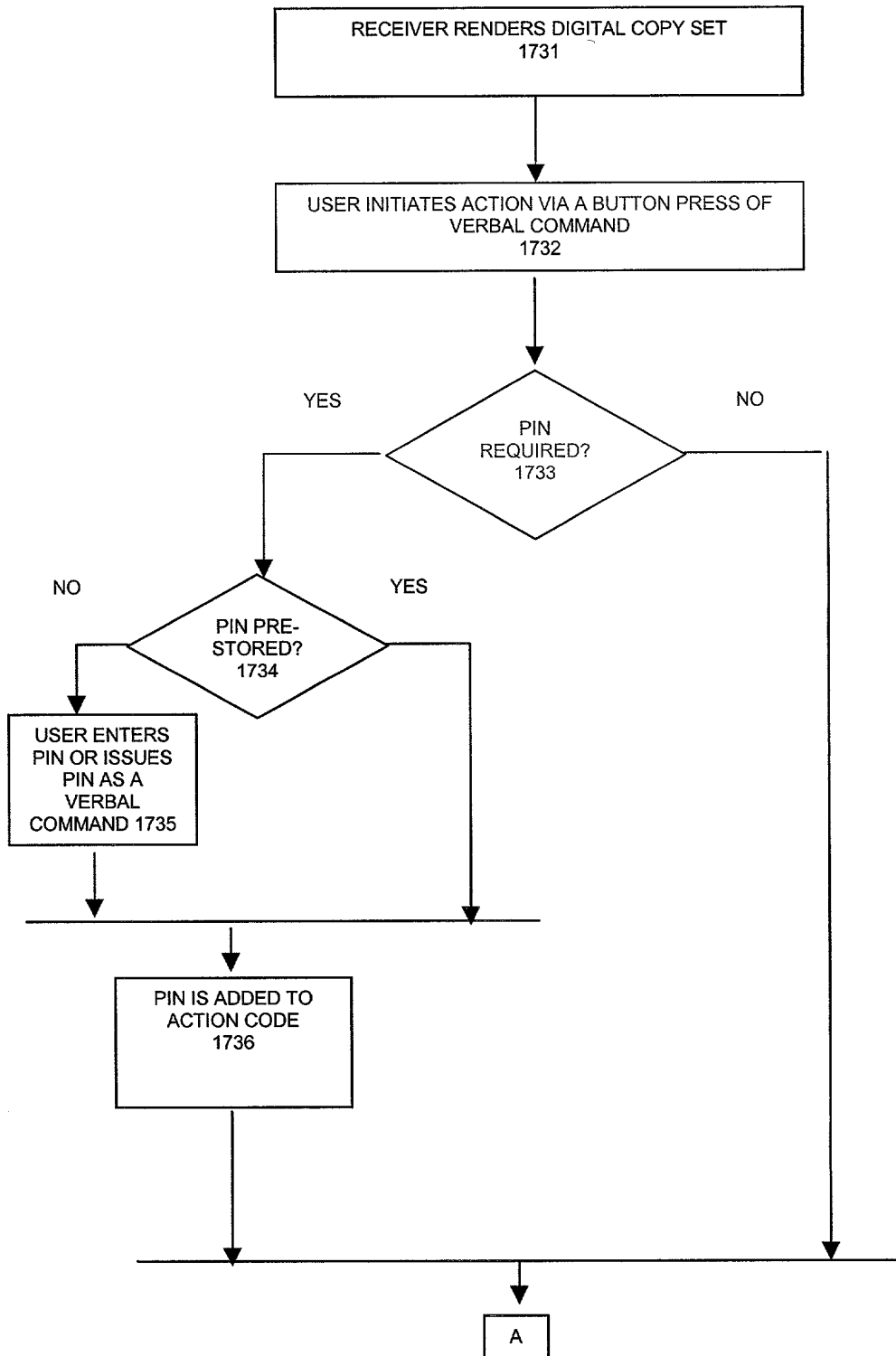
PIN PRE-
STORED?
1734

USER ENTERS
PIN OR ISSUES
PIN AS A
VERBAL
COMMAND 1735

PIN IS ADDED TO
ACTION CODE
1736

A

FIG. 16E



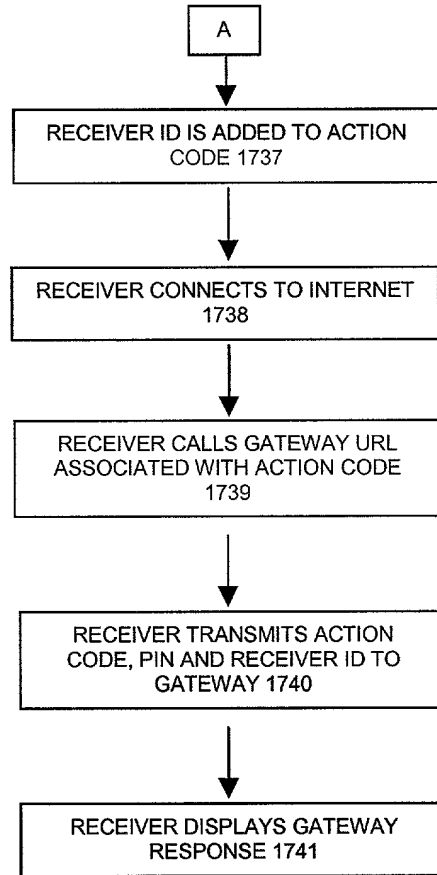


FIG. 16E1

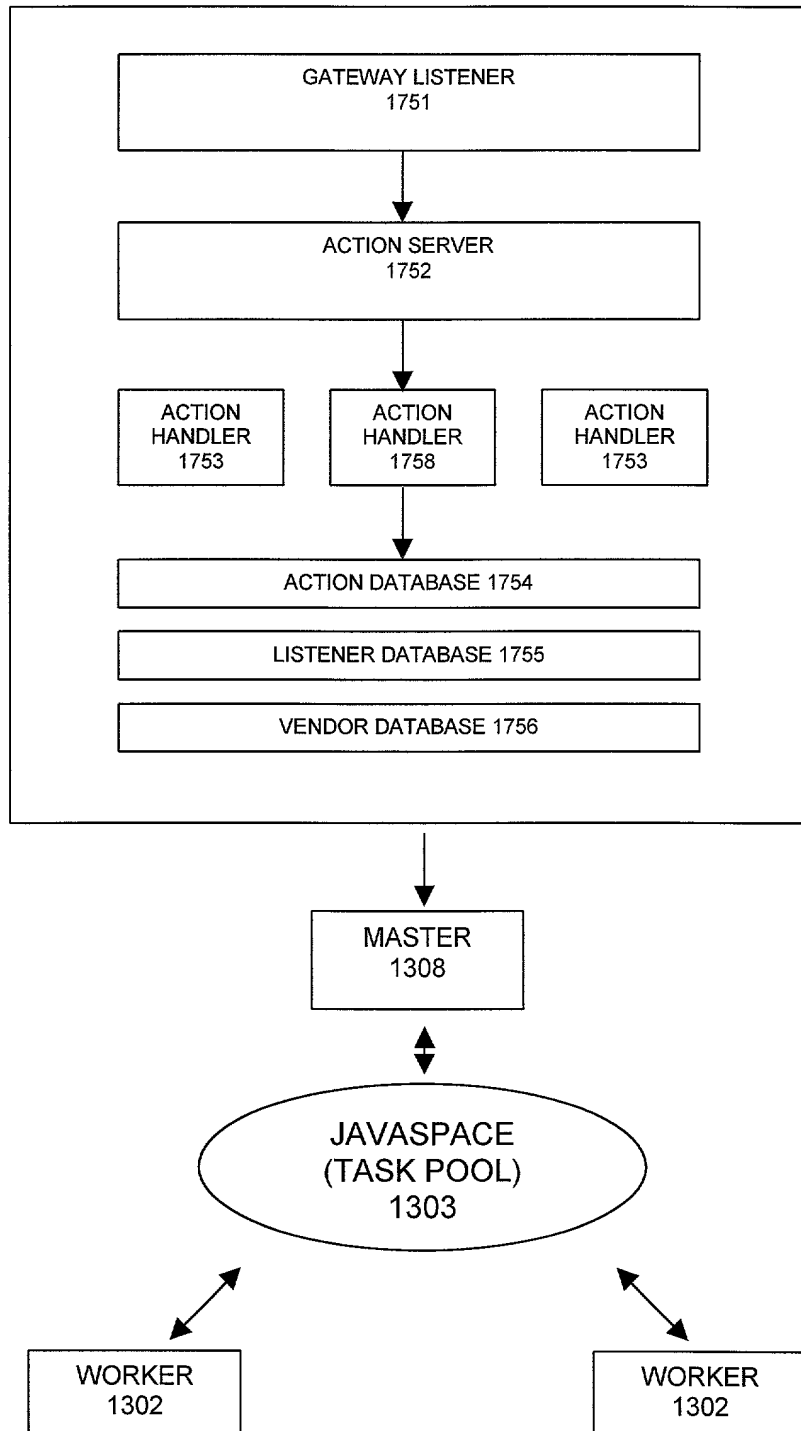


FIG. 16F

1750

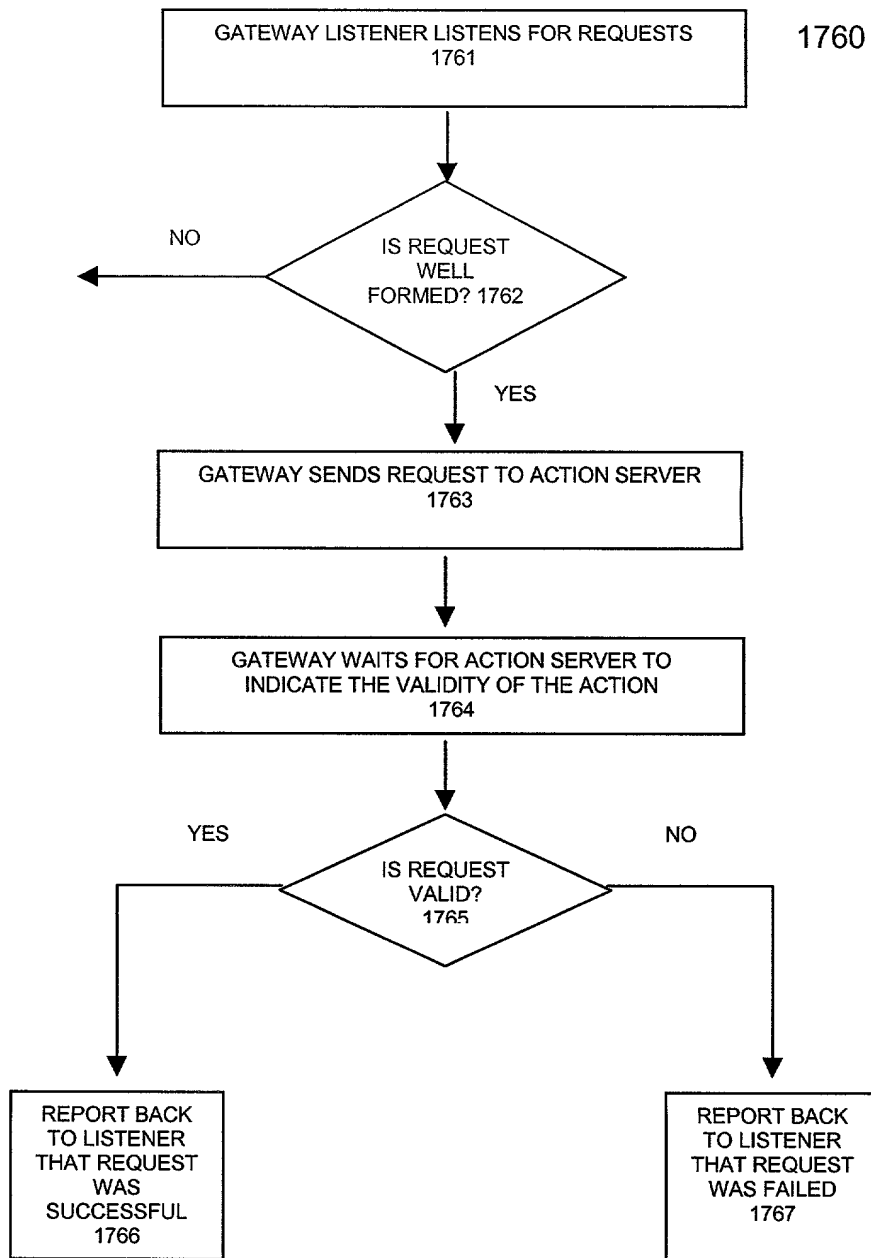


FIG. 16G

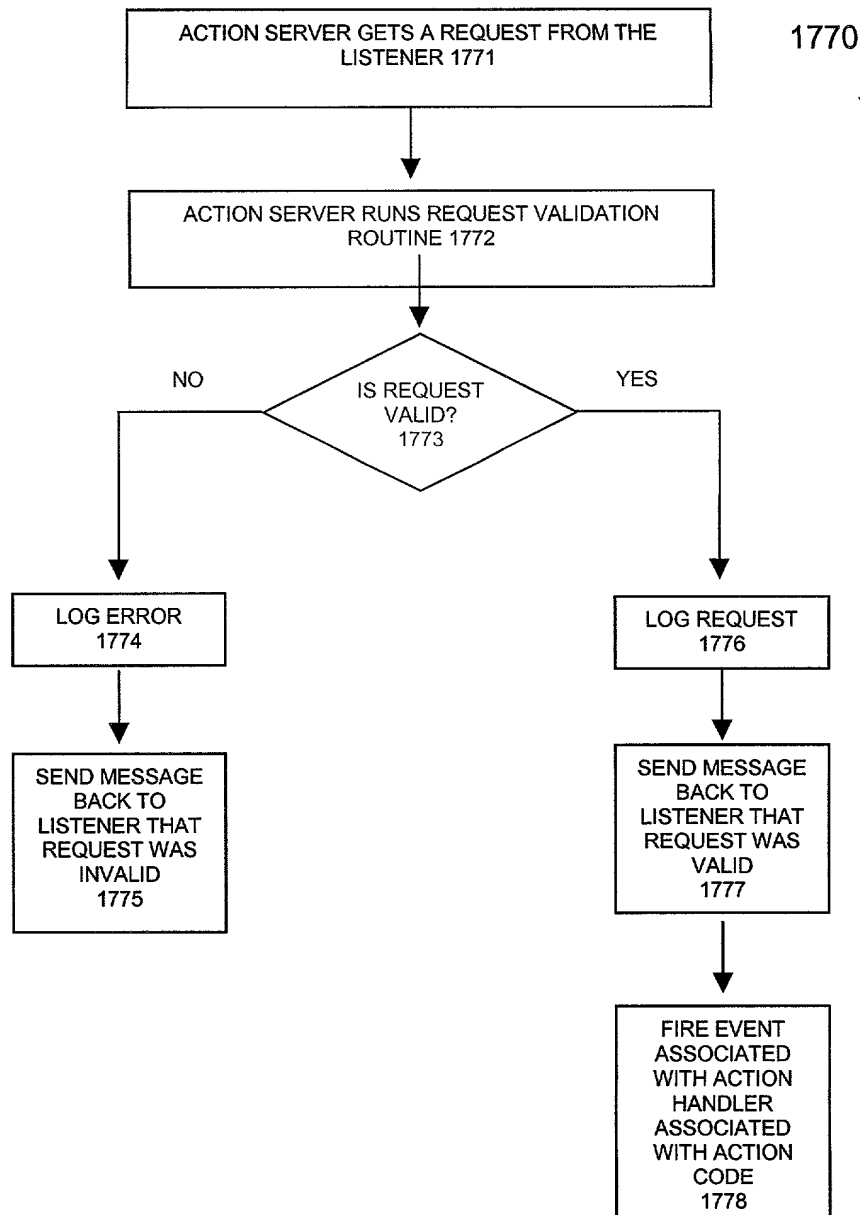


FIG. 16H

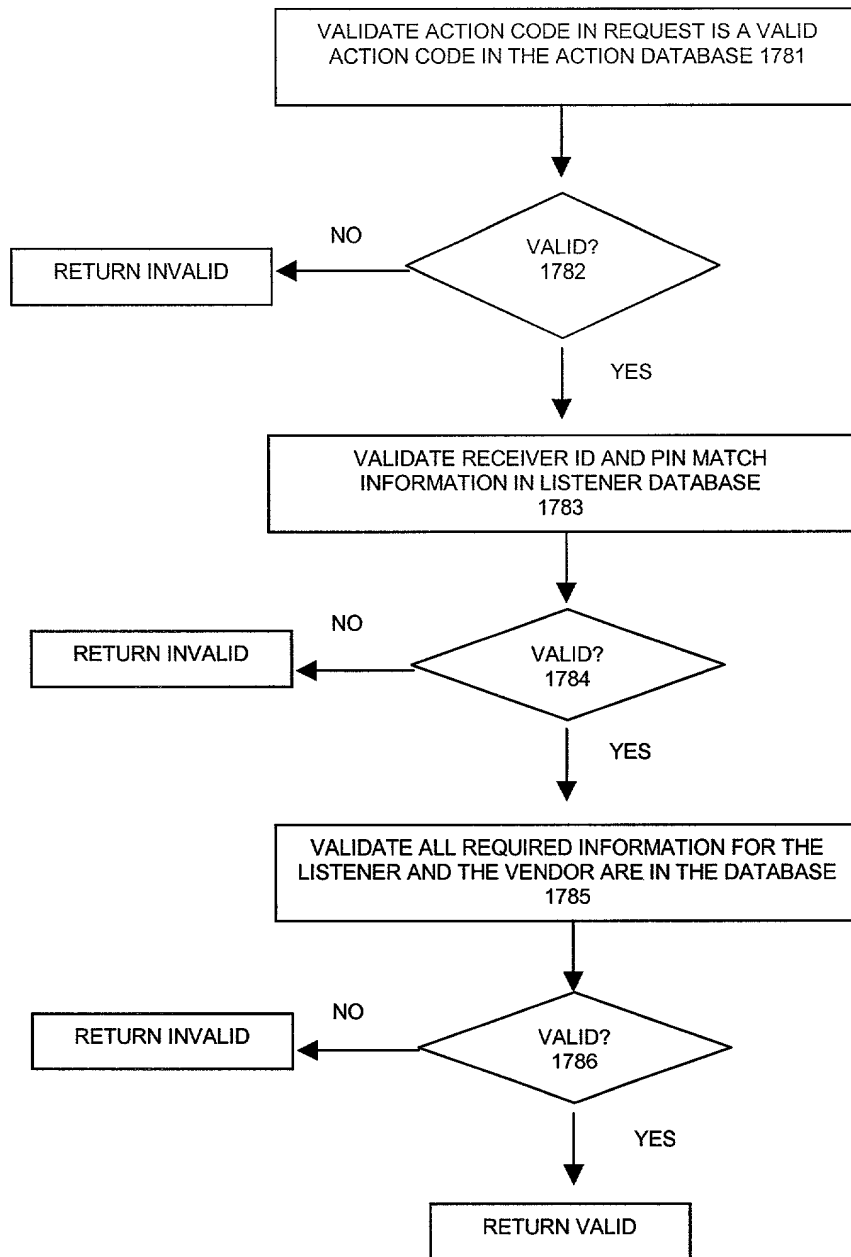
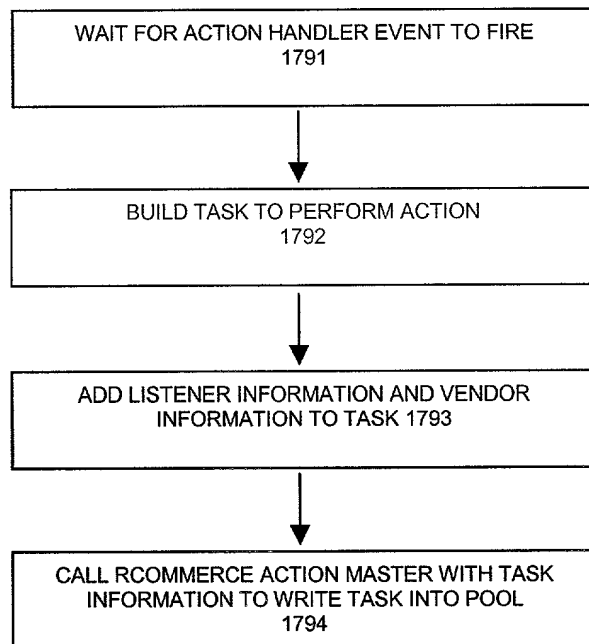


FIG. 16I



1790

FIG. 16J

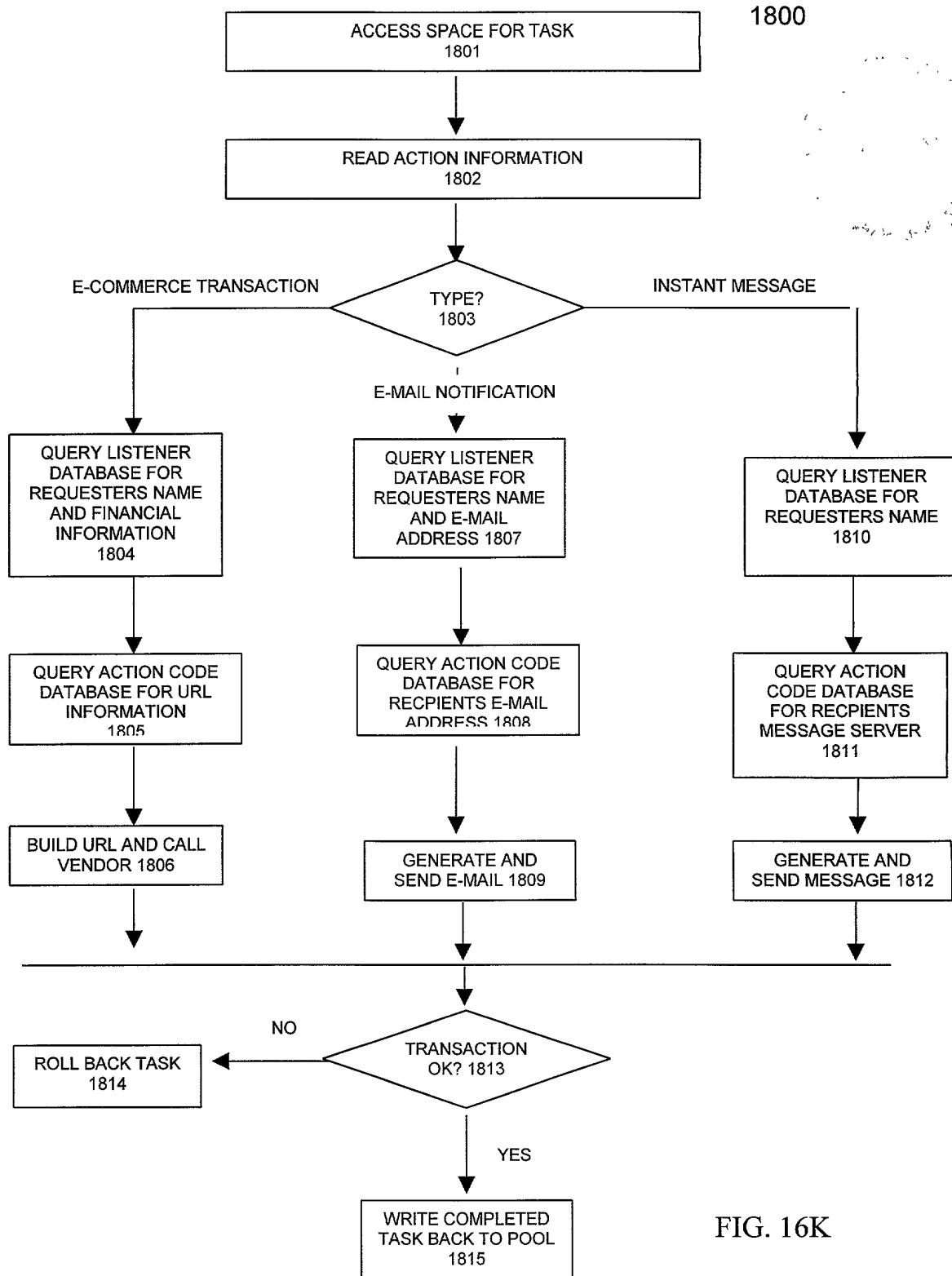
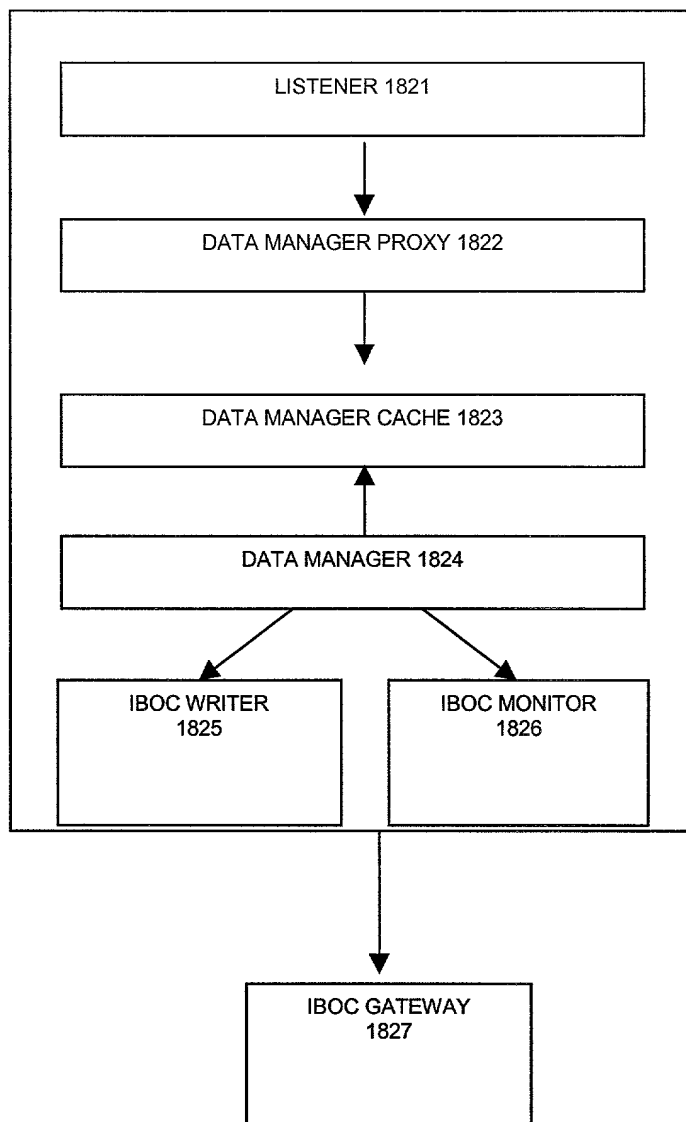


FIG. 16K



1820

FIG. 17A

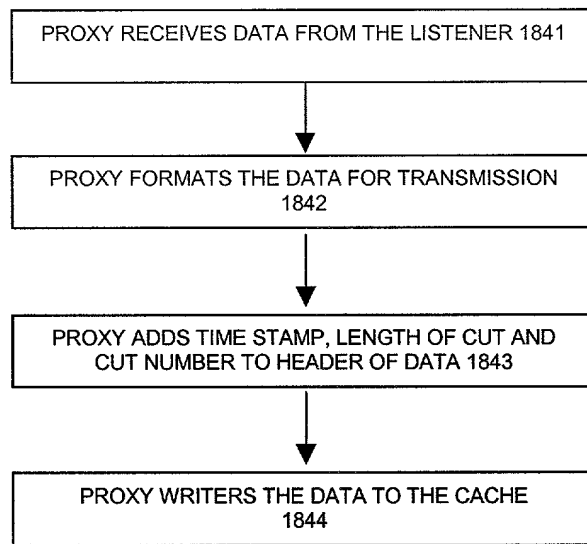
LISTENER LOOKS FOR DATA ON A TCP/IP OR OTHER
COMMUNICATION PORT 1831



LISTENER GRABS DATA AND SENDS IT TO THE
PROXY 1832

1830

FIG. 17B



1840

FIG. 17C

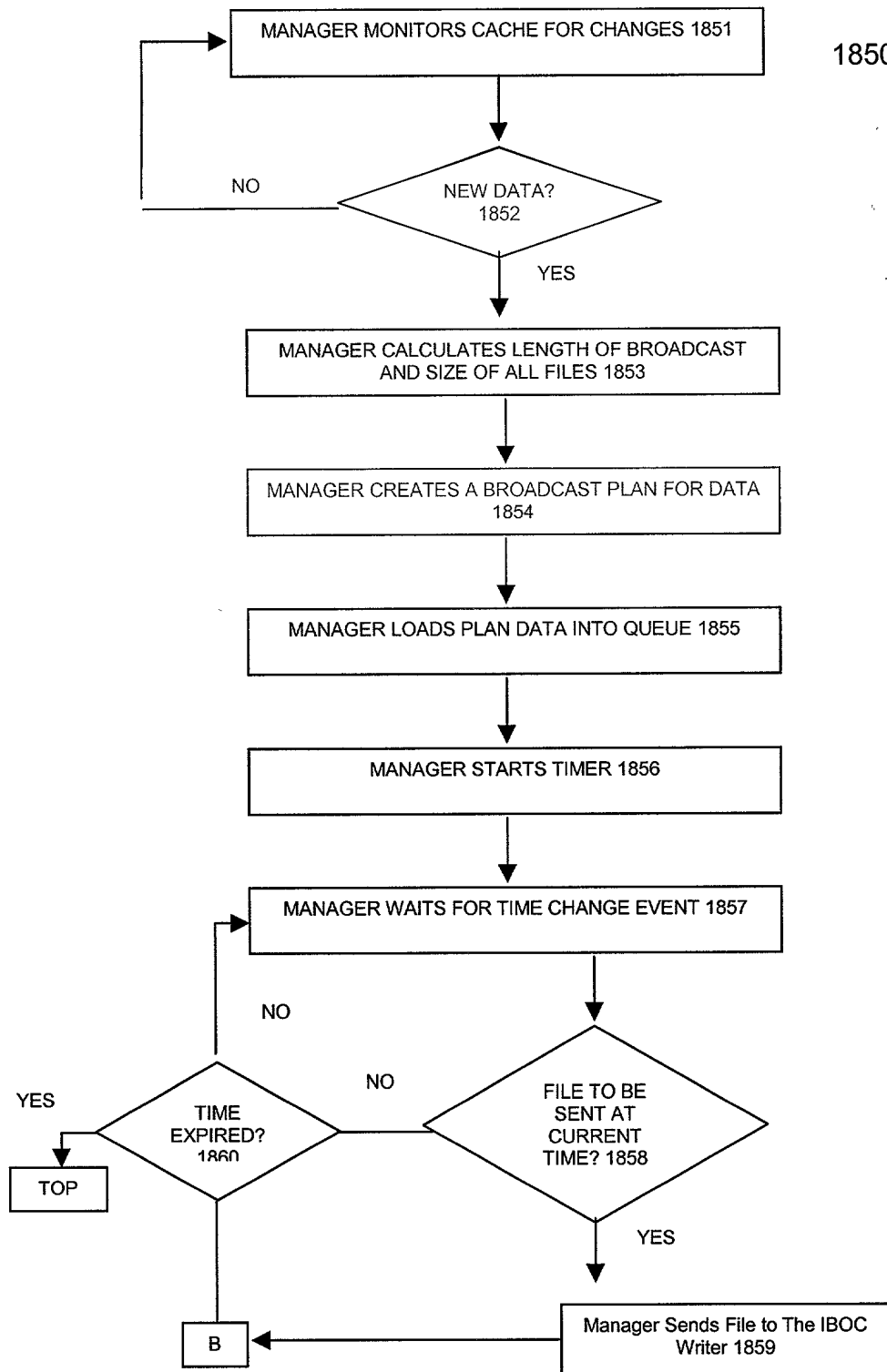


FIG. 17D

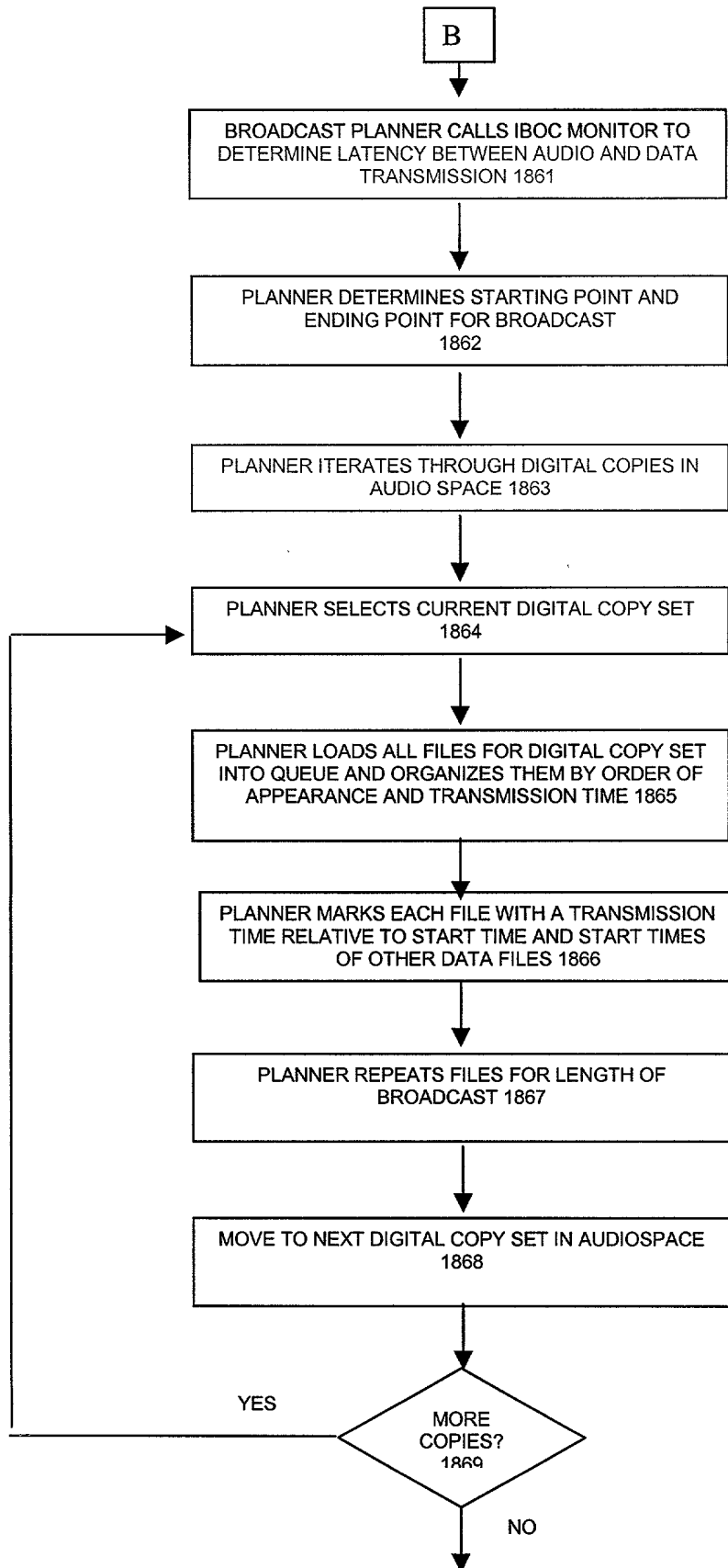


FIG. 17E

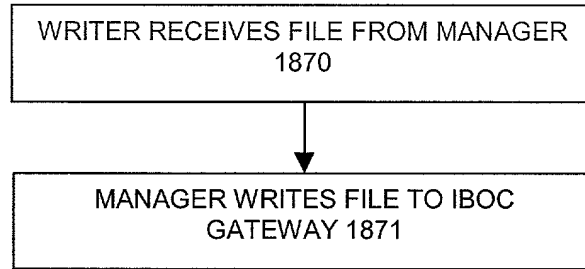


FIG. 17F

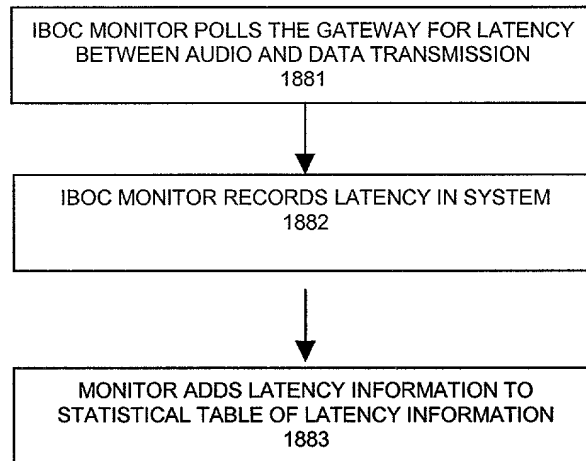


FIG. 17G

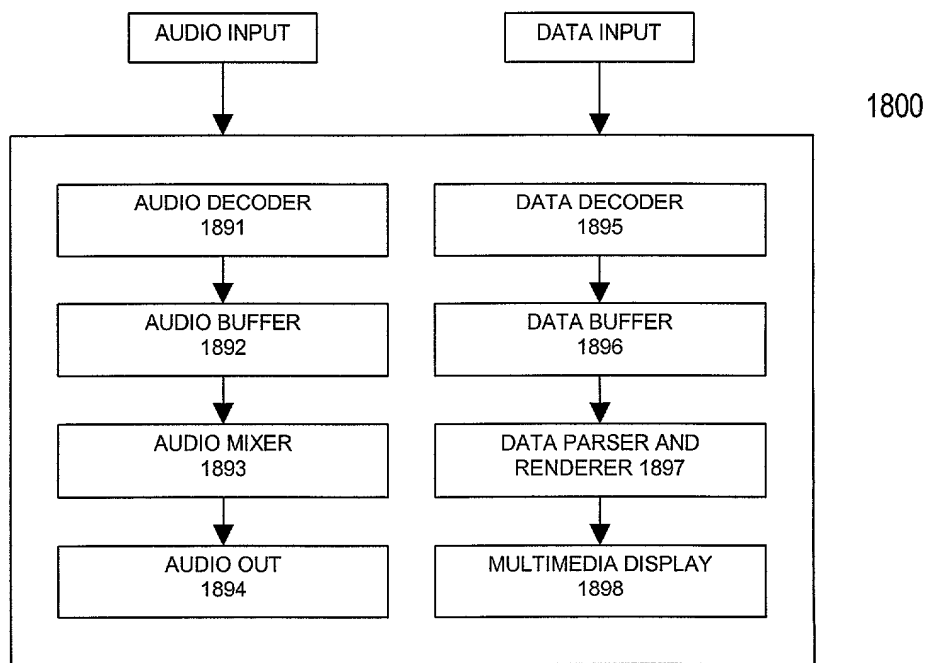
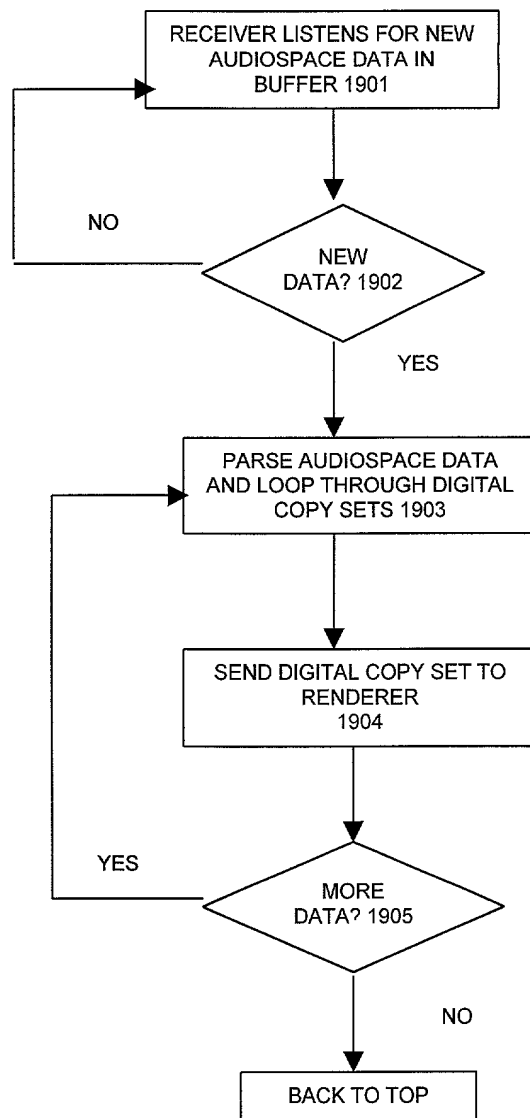


FIG. 18A



1900

FIG. 18B

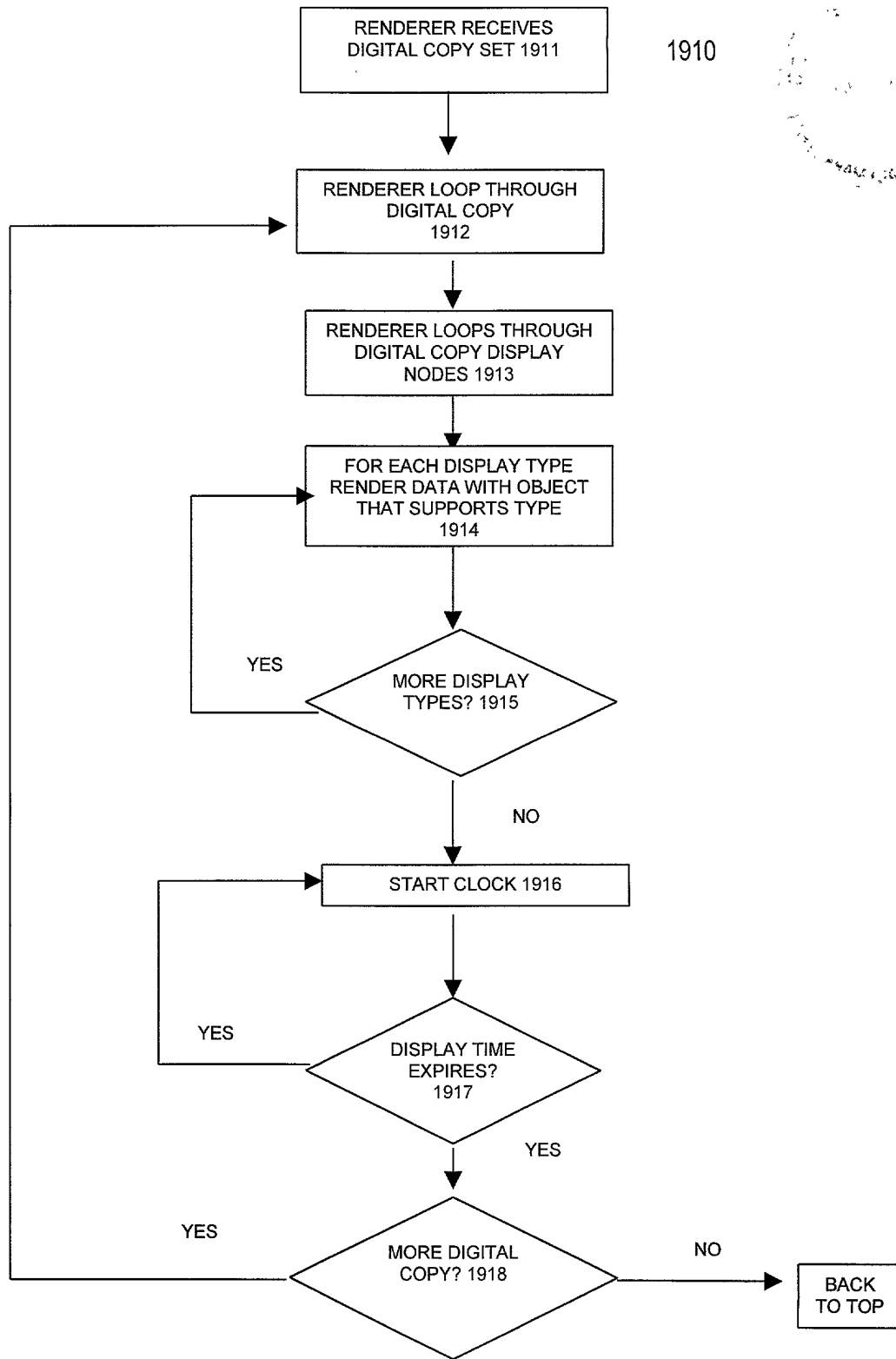


FIG. 18C

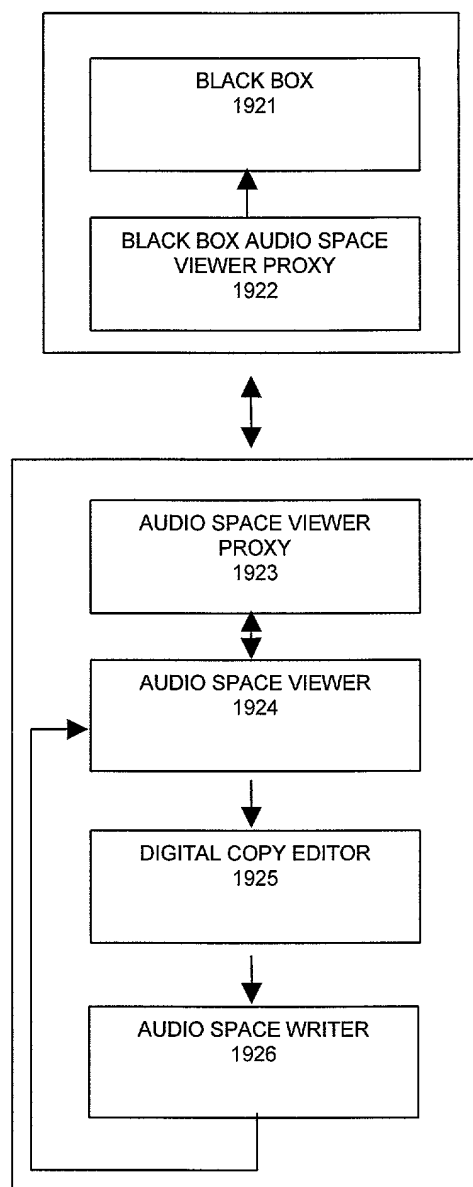


FIG. 19A

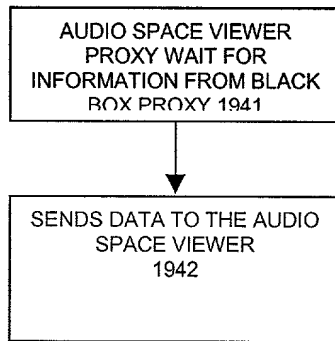
BLACK BOX PROXY
DETECTS CHANGES IN THE
AUDIO SPACE CACHE
1931

1930



WHEN A CHANGE OCCURS
PROXY WRITES
INFORMATION VIA SERIAL
CHANNEL
1932

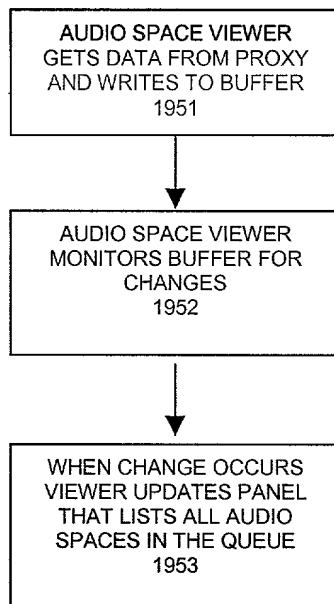
FIG. 19B



1940



FIG. 19C



1950

FIG. 19D

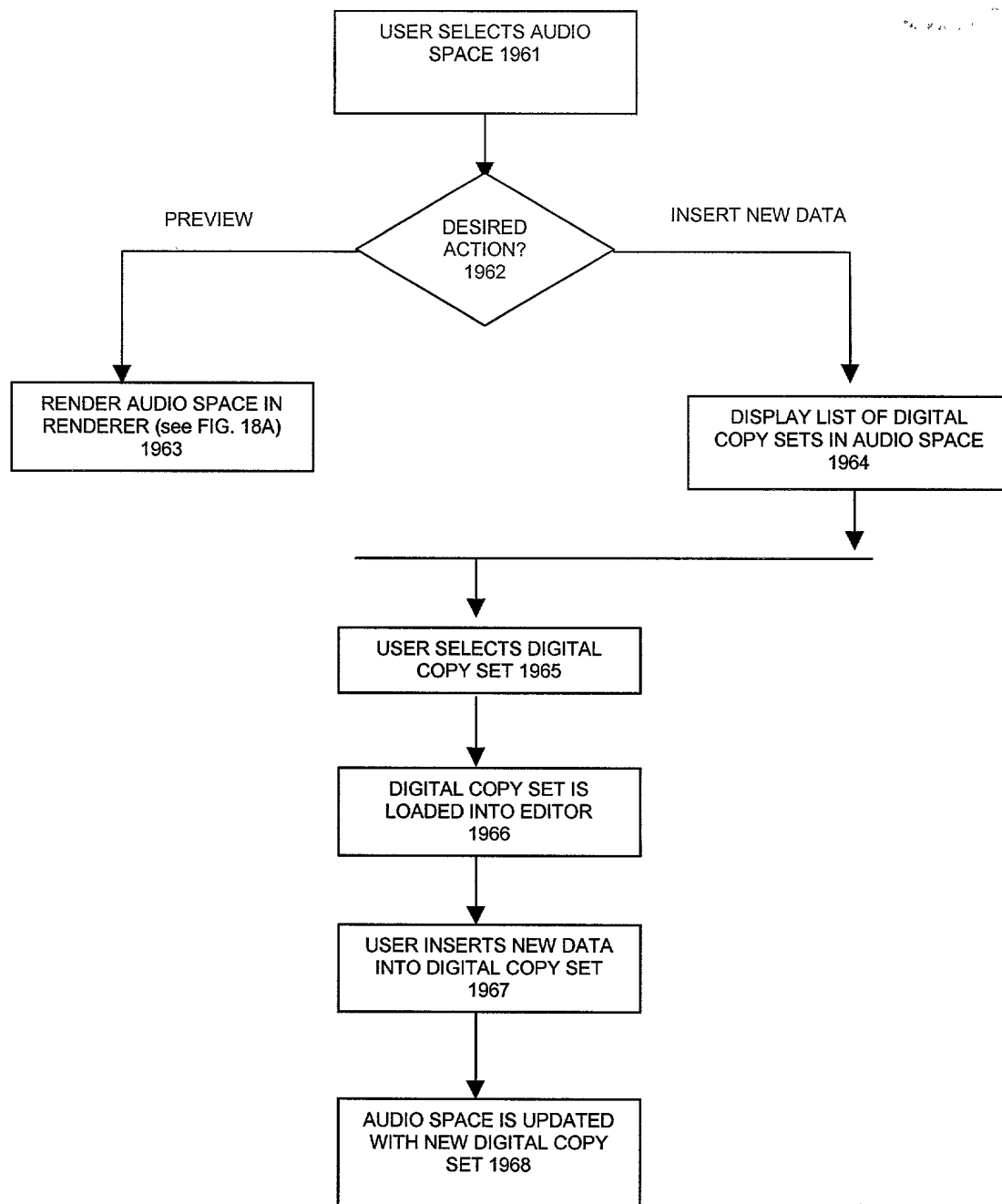


FIG. 19E

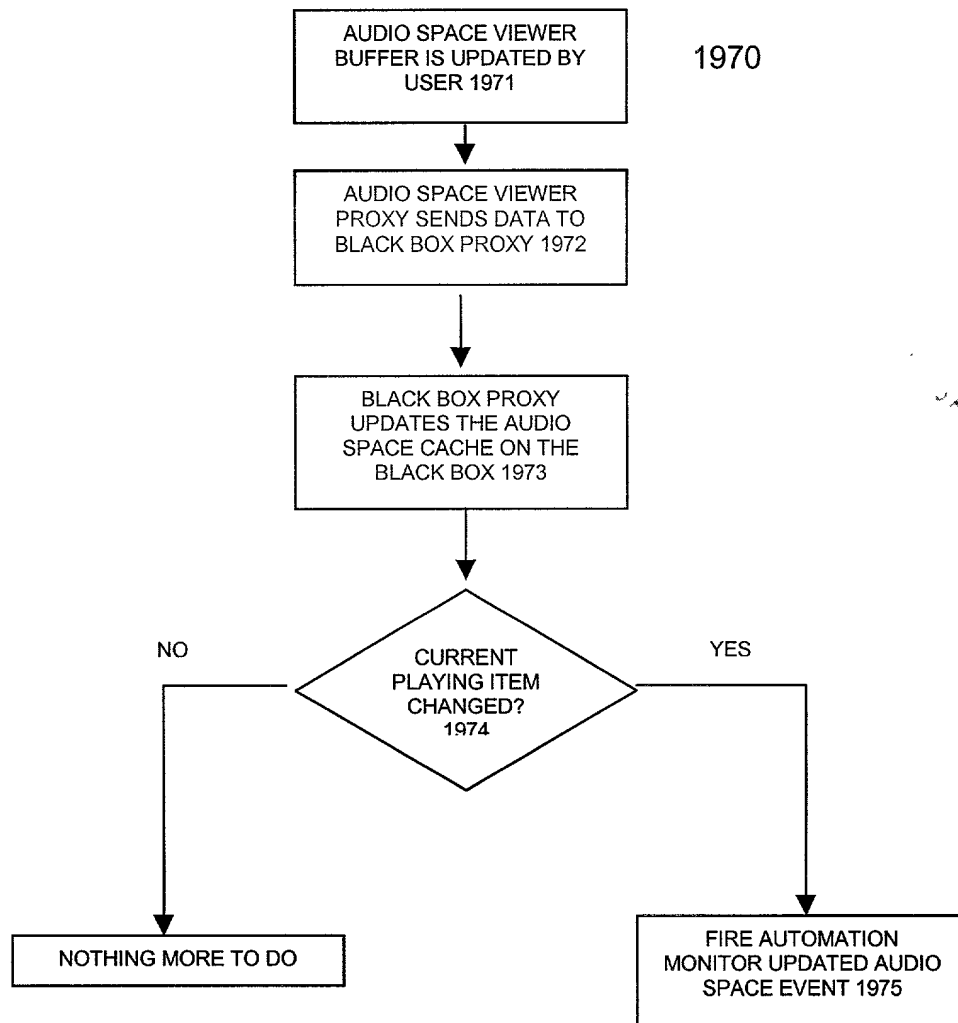
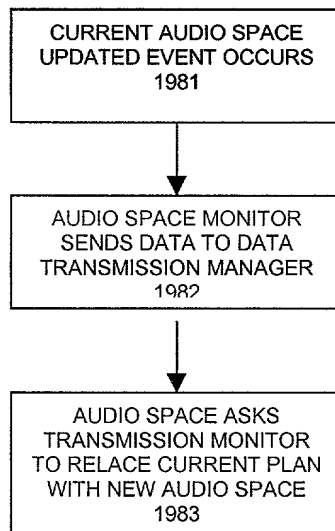
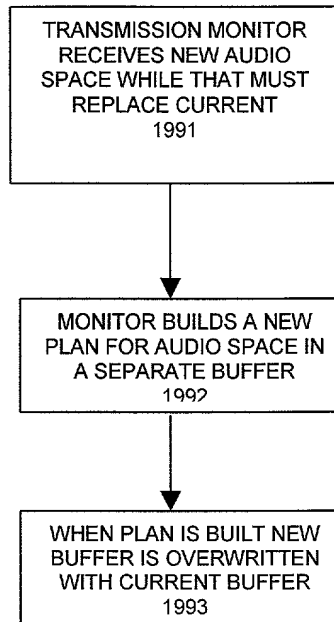


FIG. 19F



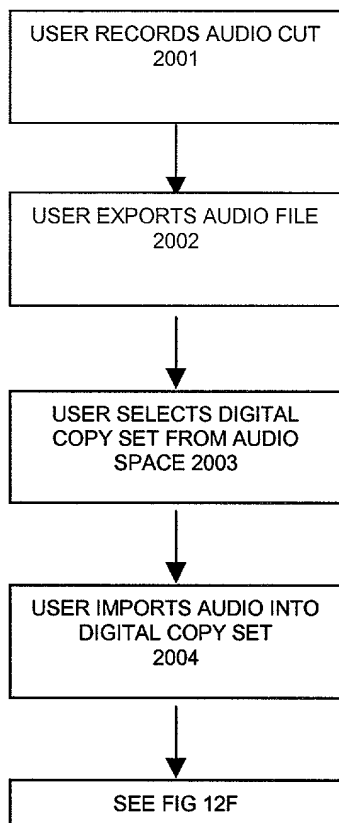
1980

FIG. 19G



1990

FIG. 19H



2000

FIG. 19I

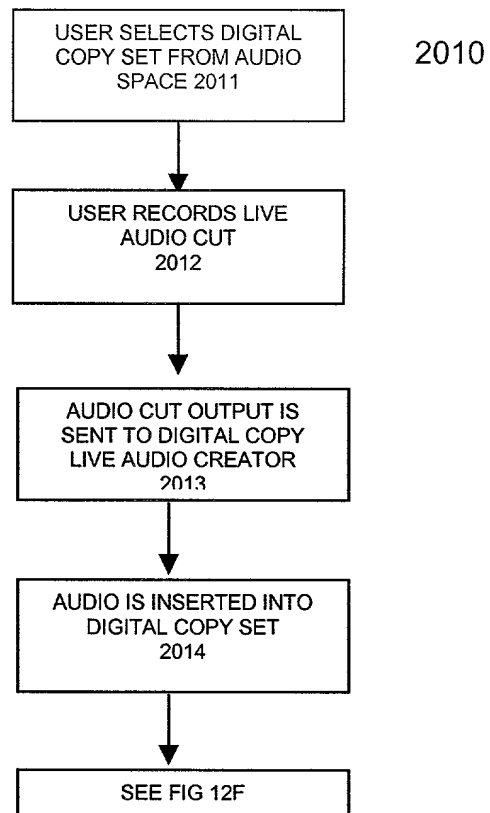
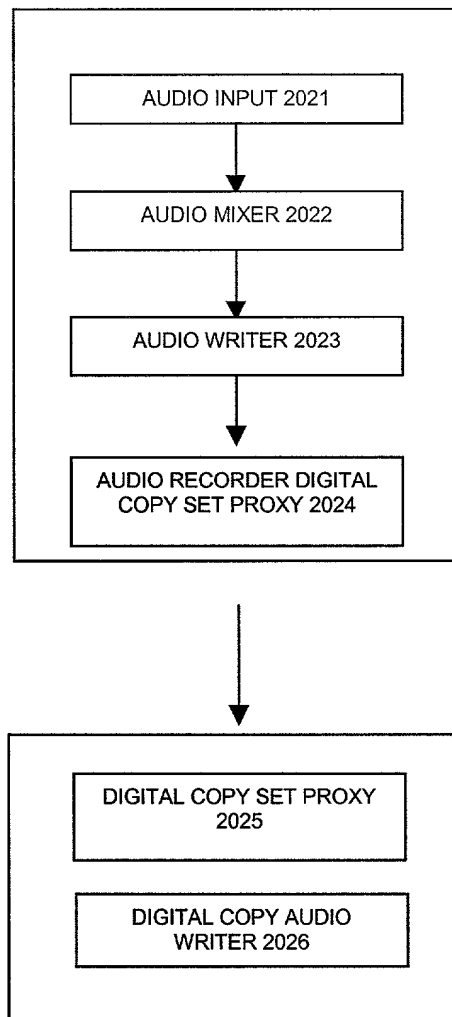


FIG. 19J



2020

FIG. 19K

RECORDER PROXY ADDS
HEADER THAT INDICATES
FILE SIZE AND MEDIA TYPE
2031

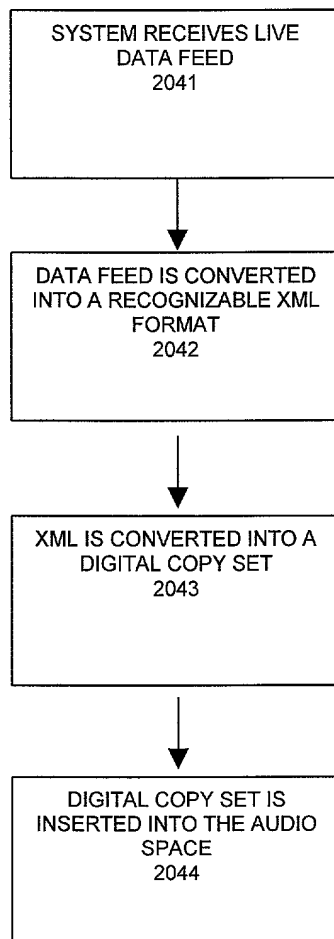
2030

RECORDER PROXY SENDS
AUDIO OVER A
COMMUNICATION CHANNEL
TO THE DIGITAL COPY SET
EDITOR PROXY
2032

DIGITAL COPY SET AUDIO
WRITER READS AUDIO
DATA AND SERIALIZES
INFORMATION INTO A
DIGITAL COPY DISPLAY
NODE 2033

WRITER SET DISPLAY TYPE
INFORMATION TO MATCH
MEDIA TYPE
2034

FIG. 19L



2040



FIG. 19M

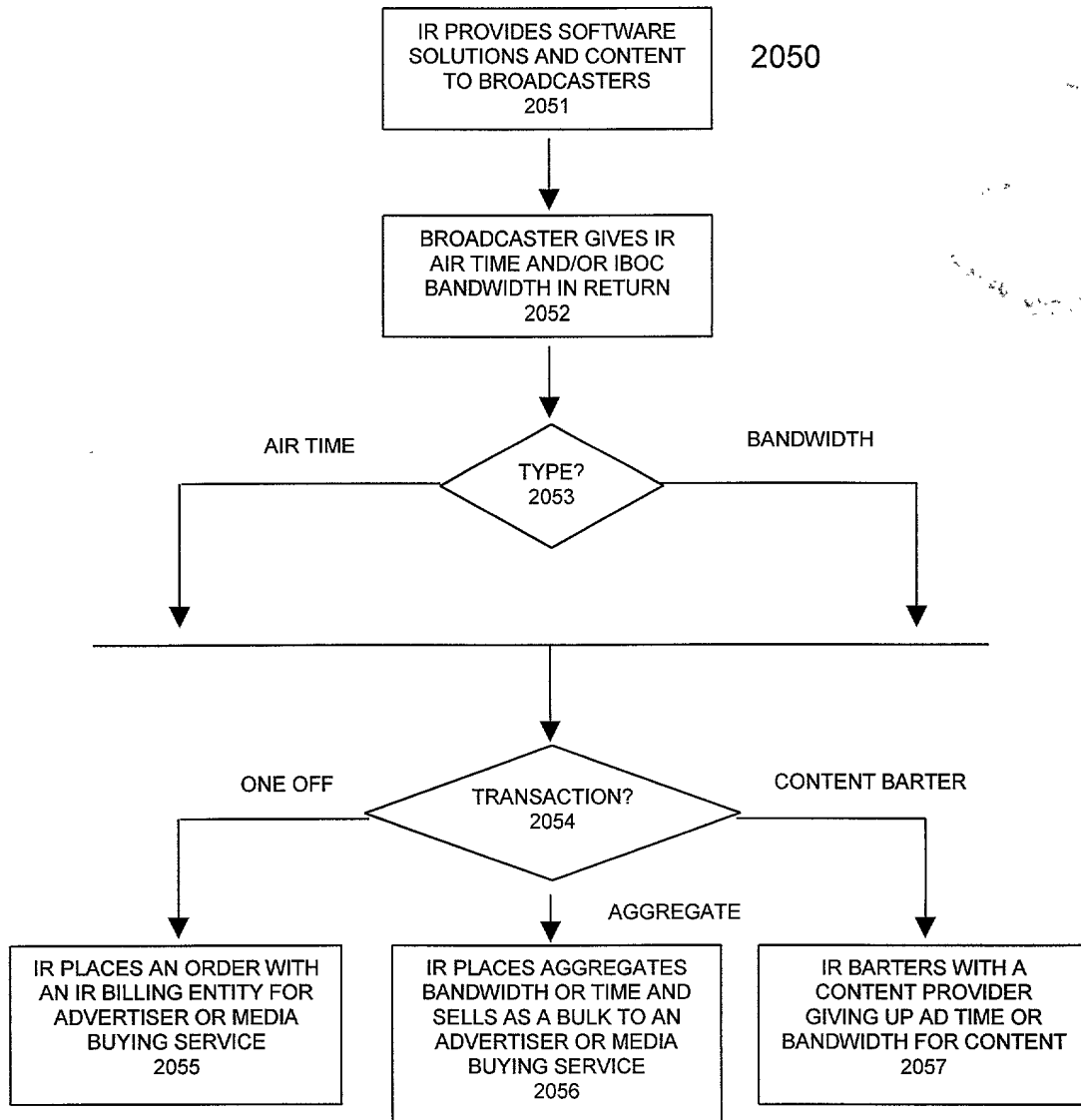


FIG. 20